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Poverty impacts of agricultural trade liberalisation in Sri Lanka

**A thesis
submitted in fulfilment
of the requirements for the degree
of
Doctor of Philosophy in Economics
at
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by
Seetha P.B. Ranathunga**



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Abstract

There remains controversy over whether trade liberalisation in general, and agricultural trade liberalisation in particular, leads to poverty reduction in developing countries. Since the impacts of agricultural trade liberalisation differ according to the characteristics of the country and specific groups of people within that country, country-specific studies are imperative. It is both important and timely to investigate the poverty impact of agricultural trade liberalisation in Sri Lanka, a country that began opening its economy three decades ago and has reduced poverty tremendously, despite a civil war lasting nearly three decades.

This study focused primarily on changes in poverty due to agricultural trade liberalisation in Sri Lanka. Analysis was undertaken in three main areas. Firstly, it investigated poverty determinants and their behaviour over sectors and over expenditure deciles in Sri Lanka since the second wave of economic liberalisation, and found that remittances (both local and foreign) have been a leading factor in poverty reduction in Sri Lanka over the last two decades. Thus, secondly, an attempt was made to capture the economic impact of rural-to-urban labour migration and the use of remittances within agricultural communities in Sri Lanka. Finally, the poverty, impact of future agricultural trade liberalisation in Sri Lanka was assessed within a global computable general equilibrium (CGE) modelling framework using the Global Trade Analysis Project (GTAP) model and database, augmented with poverty data for Sri Lanka (GTAP-POV). In addition, policies contributing to poverty reduction in Sri Lanka were analysed.

The results of the econometric analysis using household survey data indicated that education and remittances were the primary factors which reduced poverty in Sri Lanka over the last two decades. Significant variations were identified regarding the direction and magnitude of the poverty determinants in Sri Lanka irrespective of the sector. The local remittance variable was tested as a poverty determinant for the first time in the Sri Lankan context and found to be significant in poverty reduction in the rural and estate sectors in particular. The poverty decomposition result indicated that

the redistribution component has dominated the growth component of the change in poverty in Sri Lanka over the last two decades.

This study also examined the economic impact of rural-to-urban labour migration and remittances using a sample survey data collected from Gampaha District, where the majority of the factories are located in Sri Lanka. It specifically investigated the “in-kind” variable as a determinant of remittances and confirmed a positive and significant impact. Individual migrants’ average income gains from migration varied between 4,000 and 9,000 rupees per month and migrants who shifted from agricultural sector jobs to factory jobs had the highest income gain in rural-to-urban migration. Individual income gain in the urban sector is rewarded by level of education and work experience, in contrast to rural sector earnings.

Analysis using the GTAP-POV model indicated that agricultural trade liberalisation in Sri Lanka reduces poverty much more significantly in each population stratum under multilateral and unilateral trade liberalisations, than is the case with bilateral trade liberalisation. Poverty elasticities were derived and applied for all household strata in Sri Lanka in the GTAP-POV framework. It was estimated that more than one million individuals would escape from extreme poverty in the rural diversified stratum under the scenario of full trade liberalisation of the agricultural sector, as well as around four million individuals would move above the US\$2/day poverty line. Rural labour stratum and diversified urban stratum also show a significant level of poverty reduction under the agricultural trade liberalisation.

The analysis of poverty-focused policies in Sri Lanka indicated that poverty was initiated in the colonial period with the importation of Indian Tamil labour for the plantations. Welfare policies focused on the poor since independence have aimed at compensation of consumption expenditure rather than having an investment focus. Sri Lanka needs investment-focused poverty policies with welfare-focused compensation policies to achieve systematic poverty alleviation.

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(<http://article.sciencepublishinggroup.com/pdf/10.11648.j.eco.20140303.11.pdf>)
- Ranathunga SPB (2014) “Impact of rural to urban temporary labour migration on farming communities in Sri Lanka”, *Pageant (Ed), Confidence Foundation International*, Ahmadabad, India. pp. 67 - 84
- Ranathunga SPB (2013) “Changes of the determinants of household poverty in Sri Lanka: A study of 1990 – 2010”, *Intensity International Journal of Applied Social Research*, Vol.02, No.02.

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- Economic impact of rural to urban temporary labour migration on farming communities in Sri Lanka (2012): *Extended abstract in Sri Lanka Economic Research Conference Proceedings*, Sri Lanka Forum of University Economists.
- Changes of poverty determinants in Sri Lanka: 1990-2010 (2012), abstract, *Conference Proceedings, National Geographic Conference*, Dept. of Geography, and University of Kelaniya.
- The economic impact of temporary labour migration and remittances farming communities: a Sri Lankan case study, NZARES conference NZ, Nelson. 25th - 26th August 2011 <http://www.nzares.org.nz/pdf/2011/>
- The economic impact of temporary labour migration and remittances on farming communities in Sri Lanka, 15th Annual Waikato management School Students Conference 2011(17th Oct), NZ
- Impact of rural to urban labour migration and the remittances on sending household welfare: a Sri Lankan case study. (2011)-Working paper *Munich Personal RePEc Archive*, <http://mpira.ub.uni-muenchen.de/35943/>
- The determinants of household poverty in Sri Lanka: 2006/2007, (2010) – working paper *Munich Personal RePEc Archive*. <http://mpira.ub.uni-muenchen.de/34174/>
- Changes in determinants of household poverty in Sri Lanka 1990-2007, *abstract 7th Annual Graduate Conference 2010* (27th Oct), School of Asian Studies, University of Auckland, NZ
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Acronyms

ADP	Agriculture Development Proposal
AGE	Applied General Equilibrium
AIDADS	An Implicitly Additive Demand System
AoA	Agreement on Agriculture
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BOI	Board of Investment
CGE	Computable General Equilibrium
DCS	Department of Census and Statistics
EPR	Effective Protection Rate
EPZ	Export Processing Zone
EU	European Union
FFV	Fresh and processed fruits and vegetable
FGT	Foster, Greer & Thorbecke
FTZ	Free Trade Zone
GAMS	General Algebraic Modelling System
GDF	The Global Development Finance
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project
HDI	Human Development Index
HDR	Human Development Report
HIES	Household Income and Expenditure Survey
IGIDR	Indira Gandhi Institute of Development Research
IMF	International Monetary Fund
ISCO	International Standard Classification of Occupations
LES	Linear Expenditure System
MDGs	Millennium Development Goals
MDGs	Millennium Development Goals
NELM	New economics of labour migration
NDB	National Development Bank
NPR	Nominal Protection Rate
OECD	Organization for Economic Corporation and Development
OLS	Ordinary Least Square Method
PA	Peoples Alliance
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Paper
PTTC	Presidential Trade and Tariff Commission
QR	Quantile Regression

ROW	Rest of the World
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asia Free Trade Agreement
SAM	Social Accounting Matrix
SAP	Structural Adjustment Program
SLFP	Sri Lanka Freedom Party
SME	Small and Medium Enterprises
TTI	Textile Training Institute
TWN	Third World Network
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNF	United National Front
UNP	United National Party
UPFA	United Peoples Freedom Alliance
URAA	Uruguay Round Agreement on Agriculture
US\$	United States Dollar
USA	United States of America
WDI	World Development Index

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Chapter 1: Introduction

1.1 Introduction

Following negotiations under the Doha Development Agenda (DDA) of World Trade Organization (WTO), agricultural trade liberalisation has been more focused on developing countries (Hertel & Winters, 2005) and there has been growing interest in observing the main factors affecting the livelihood of the poor, particularly the rural poor in developing nations. Previously, much of the research addressed the impact of trade liberalisation on aggregate welfare in developing nations or the relationship between trade liberalisation and poverty (McCorriston et al., 2013). However, moving towards free trade by reducing tariff and non-tariff trade barriers is one of the main factors in poverty reduction in developing nations. In considering agricultural trade liberalisation, national poverty impacts should be assessed by investigating whether higher world prices for farm and food products will even reach the rural households where the bulk of the poor reside (Hertel & Winters, 2005). Thus, assessing the national impacts of policy reforms leads to better policy formulation within national economies, as the impacts differ according to the characteristics of the country.

Sri Lanka, as the pioneer of economic liberalisation in South Asia, is much concerned with poverty reduction and the reduction of income inequality through trade liberalisation following a devastating civil conflict lasting nearly three decades. Also,

Sri Lanka, as a founder member¹ of the WTO, is a signatory to many bilateral and regional trading agreements (including the Bangkok Agreement (1975), BIMSTEC 1997, SAARC, SAFTA ISFTA (1998)), which have been beneficial in enhancing commercial relationships and the facilitation of trade and investment by reducing/eliminating tariffs, quotas, export restrictions and other trade barriers². As an agriculturally-based developing nation, Sri Lanka needs to focus on the impact of agricultural trade liberalisation on poverty in its development plans. Thus, this study aims to contribute to the existing literature in this area.

1.2 Background to trade and development policies

In the discussion of economic strategies for development, the post-World War II period is significant not only because the discourse on such strategies emerged during this period, but also because this is when effective implementation of such strategies commenced. For example, the positive impact of the Marshall Plan on reconstruction and development in devastated Europe and the expansion of socialist ideas paved the way for the consolidation of state-centred approaches worldwide. Therefore, in the early 1950s, many countries in the world followed state-centred development strategies to achieve their development objectives (Cheema & Rondinelli, 1983, p. 501; Oxhorn, Tulchin, & Selee, 2004, p. 4). As a result of such development strategies, led by central development plans, many countries recorded a substantial

¹ Sri Lanka became a founder member of the WTO when the organization was established in 1995. Prior to that, Sri Lanka was one of the 23 founder members of the General Agreement on Tariff and Trade (GATT). The Uruguay Round of Trade Negotiations were undertaken under the auspices of GATT which led to the establishment of the WTO (http://www.doc.gov.lk/web/index.php?option=com_content&view=article&id=61&Itemid=64&lang=en) (accessed 12th October 2014).

² <http://www.srilankabusiness.com/exporters/trade-agreements.html> (accessed 12th October 2014)

improvement in human development indicators such as literacy rate and life expectancy. However, despite such positive outcomes, most of these countries still had to face problems such as slow economic growth and widening inequality, mainly due to widening trade deficits (Bangura & Larbi, 2006, p. 2). Hence, developing countries were busily probing the root causes of the trade deficit. By the 1950s and 1960s, some had introduced closed economic policies promoting import substitution as the leading growth policy to achieve their development objectives (Baldwin, 2004, p. 500; Bruton, 1998, p. 903).

Although the economic leaders of some developing countries favoured this import-substitution strategy, they soon discovered problems. The reason for this was the tremendous demand on capital and consumer goods which quickly absorbed existing foreign exchange reserves. As a result, export earnings were unable to fill the gap between demand and supply at existing exchange rates³ (Baldwin, 2004, p. 502).

In addition, since the collapse of the Soviet Union, many countries have been grappling with the problems of transition from a rigid, state-dominated economy to a deregulated market economy (Dunham & Jayasuriya, 2010, p. 97). Since the 1980s, the Washington Consensus⁴ has recommended that governments should reform their

³Most of the developing countries wanted to impose controls on foreign exchange and imports to conserve available export earnings. They also wanted to establish a rationing system for the available foreign exchange to ensure ongoing supplies of consumer needs such as food and medicine and key intermediate inputs such as fuel.

⁴ Since the 1980s, the emergence, consolidation and diffusion of a new economic paradigm called the 'Washington Consensus' has occurred. It has aimed for "macroeconomic stability, the liberalization of domestic markets, privatization, the removal of barriers to international trade and financial flows, and the search for market based solutions also in the provision of public goods or goods with large externalities" (Cornia, 1999).

policies, particularly by opening their economies to the rest of the world through trade and capital account liberalisation and by liberalizing domestic product and factor markets through privatization and deregulation (Gore, 2000, pp. 789-804). Proponents of this approach have long claimed that the huge opportunities offered for export and growth in developing countries will promote convergence of incomes and living standards in poor countries and reduce poverty worldwide (Cornia, 1999, p. 1). Further, they claim that poverty is reduced significantly through growth-oriented, rather than redistributive policies. Moreover, the structural adjustment policies of international financial institutions such as the International Monetary Fund (IMF) and the World Bank have broadly supported greater liberalisation and globalization.

Globalization attracted increasing attention in the 1990s, including through the World Trade Organization (WTO) which had subsumed the General Agreement of Trade and Tariff (GATT) (Khan, 2009, p. 1). Even the breakup of the former Soviet Union is considered a causality of globalization. Trade was considered to be a consequence of economic development with growing significance.

Therefore, academic literature emerged to explore the impact of trade liberalisation on poverty and inequality. However, the huge volume of theoretical and empirical literature on the impact of trade liberalisation on poverty and inequality in both developing and developed countries is still divided into two opposing views. One

standpoint is that trade liberalisation supports the significant reduction of poverty⁵ while the other holds that trade liberalisation tends to make the poor poorer and the rich richer, thus widening economic inequality. Although the Heckscher-Ohlin model predicts that gains to trade should flow to areas such as unskilled labour in developing economies, it has been challenged by new theories that suggest trade liberalisation reduces the wages of unskilled labour even in a labour-abundant country (Topalova, 2007, p. 292). Thus, trade liberalisation widens the gap between rich and poor. Even though global economic integration stimulates economic growth in the long run and reduces poverty substantially, Topalova (2007, p. 292) argues that the cost of the adjustment will be higher due to the burden falling disproportionately on the poor.

Based on the empirical evidence it can be argued that global trade reforms are unlikely to produce analogous results across countries, particularly in their effect on poverty. Thus, the social welfare impacts of trade reforms cannot be generalized. Detailed, country-by-country studies are needed to analyse the impacts, because even within the same country, geographic areas, households and individuals are likely to be affected differently: some will gain and others will lose (Akinlo & Aremo, 2013; Nicita, 2006, p. 107). Moreover, different strata of households are affected differently by trade liberalisation (Akinlo & Aremo, 2013). However, this debate is still on-going due to the ambiguity of the theory and inconsistency of the empirical evidence. Therefore, how trade liberalisation affects poverty and inequality in general

⁵ As international trade can have a significant positive effect on economic growth and development, it will support poverty reduction of any country.

and/or whether agricultural trade liberalisation helps the poor in particular, remains largely empirical questions.

Agriculture is very important in developing nations as a source of income, employment, and export earnings. Rural communities in many developing countries are directly dependent on the agricultural sector for their primary livelihoods and urban dwellers rely on the agricultural sector for food security. Almost 45 per cent of the world population lives in households where agricultural activities represent the main occupation of the head of the household. A large share of this agriculture-dependent group, close to 32 per cent, is poor (Bussolo, Hoyos, & Medvedev, 2009). Furthermore, many developing economies heavily rely on export earnings from agriculture or depend heavily on food imports (Goldin & Knudsen, 1990, p. 9). Thus, developing countries are typically the most affected by the impact of global agricultural policy issues for sustainable development and poverty alleviation. Consequently, changing economic opportunities in agriculture can significantly affect global poverty and inequality. As agricultural trade liberalisation can change the international prices of agricultural products and materials used intensively in agriculture, these changes determine the winners and losers in agricultural trade liberalisation.

The impact of trade policy on poverty, inequality, and food security in developing countries is prominent in international debate on the role of international trade in development (FAO, 2005, p. 60). Although agriculture had been generally excluded from the trade liberalisation process until the Uruguay Round negotiations of 1986-

1994 (Burfersher, 2011, p. 271), the current Doha Round of trade negotiations brings development and poverty impacts to centre stage (FAO, 2005, p. 60). Also, the Millennium Declaration highlights the significance of international trade in the context of development and poverty.

Trade liberalisation carries tremendous challenges for poor countries and poor people, especially the rural poor, while providing opportunities at the same time⁶. According to Gilbert (2008), agricultural trade liberalisation and its effects on developing economies have long been an issue of contention in international trade negotiations and the Doha Development Agenda (DDA) is proving no exception. Disputes over the treatment of agriculture, both between the major developed economies and between developed and developing economies, have threatened to derail the negotiations at several stages (Gilbert, 2008). While there is a broad consensus among economists and practitioners that liberalisation of international trade raises global and national level efficiency in the long run, developing economies as a group have generally taken a cautious view of multi-lateral agricultural trade reforms (Goldin & Knudsen, 1990). The potential for aggregate adverse effects due to changes in the world prices of food and agricultural products may have adverse effects on food security and poverty, particularly in food-import dependent small economies. This can be affected in two ways; through rises in commodity prices, which have a direct negative effect on households that spend a high proportion of

⁶See http://www.ruralpovertyportal.org/en/topic/home/tags/trade_liberalization and <http://www.un.org/en/globalissues/briefingpapers/ruralpov/developingworld.shtml>

their income on food, and through indirect effects on all households as a result of changes in factor prices.

The link between trade liberalisation and poverty is one of the most contentious areas of the debate on economic development in developing countries. Some of the studies see this link as positive, with liberalisation promoting poverty reduction, while others see the two as antithetical, pointing to the inevitable disruptions of rapid change (Hertel, Preckel, & Reimer, 2001; Winters, McCulloch, & McKay, 2004). Both sides of the debate, however, rely more on theory than on solid empirical research (Niimi, Dutta, & Winters, 2003). Various methods have been used to address this issue empirically, including cross-country comparisons, aggregate time series analysis and various simulation methods using both partial and general equilibrium analysis (Hertel & Reimer, 2004a; Hertel & Reimer, 2004b; Winters et al., 2004).

1.3 Trade and development policy in Sri Lanka

Prior to economic liberalisation in 1977, Sri Lanka pursued a closed, import-substitution strategy. Therefore, the state sector dominated⁷ the national economy of Sri Lanka. The entire import bill was subject to quotas and licensing (Dunham & Kelegama, 1994, p. 1). Further, the economy was stagnant and the country had faced unsustainable fiscal deficits, a balance of payment crisis and widespread hardships in the mid-1970s. Therefore, the newly elected government, the United National Party (UNP) introduced a liberalisation package in 1977. These open economic policies

⁷ Foreign-owned plantations were nationalized in 1975 (Dunham & Kelegama, 1994, p. 1)

brought structural changes into the economy, including agricultural trade liberalisation reforms. During this period, Sri Lanka introduced major trade policy reforms, including the introduction of tariff concessions by removing a many non-tariff measures (NTMs). Further, Sri Lanka simplified and liberalized its trade policy during the late 1980s, with the second wave of economic liberalisation (Tennakoon, 2003, p. 20) including an ambitious privatization program, further tariff cuts and simplifications of the tariff structure, removal of exchange controls on current account transactions, several important changes to the foreign investment policy framework and a more flexible exchange rate regime (Prema-Chandra, 2012, p. 1664). The government revised its import tariff structure several times, narrowing a thirteen-band structure in 1990 down to four bands in 1991 and three in 1998 (5 per cent, 20 per cent and 35 per cent). Based on the recommendations of the Presidential Trade and Tariff Commission (PTTC) in 1997, the tariff bands were further reduced to 5 per cent, 10 per cent and 30 per cent respectively in 1998. The structure was altered to two bands⁸ of 10 per cent and 25 per cent in 2002 (Mahrouf, 2005; Tennakoon, 2003). A six-band tariff system (3, 6, 12, 16, 20 and 27.5 per cent) was introduced in January 2004. The Government of Sri Lanka announced an overall reduction in tariffs, lowering many rates to zero, and eliminated a 15 per cent import surcharge on most imports in June 2010⁹ (World Trade Organization., 2010).

Despite these tariff reforms and other benefits of liberalisation, poverty remains one of the major obstacles to development in Sri Lanka. Although the latest reports on

⁸ A few items such as sugar, tobacco, liquor, crude oil and some motor vehicles came under specific rates outside of this two-band tariff system (Tennakoon, 2003).

⁹ For further information see Appendix 1

poverty in Sri Lanka indicate that the national poverty headcount has declined tremendously, to a single digit (6.7 per cent by 2013), the rural poverty ratio remained at 86.8 per cent by 2013, leaving the poverty issue as the main development obstacle in the rural sector (DCS, 2015).

Although the agricultural sector contributed more than a quarter of total GDP in 1990, it had declined considerably by 2010 while the contributions of two other sectors, services and manufacturing, had significantly increased (Figure 4-1). Although the agricultural sector led in terms of employment generation in 1990, it also showed a declining trend by 2010, while the other two sectors showed an increasing trend during the same period (Figure 4-2). The decline in the agricultural sector contributes significantly to changes in the poverty headcount in the rural sector as it plays a vital role in linking rural areas to the rural economy through bi-directional linkages. Thus, any fluctuations in the agricultural sector affect rural livelihood and rural development both directly and indirectly (Herath, 2007, p. 8). However, the agricultural sector still contributes one third of total employment in Sri Lanka and is the largest single source of employment generation. Therefore, it is important to scrutinize the impact of agricultural trade liberalisation policy on poverty and inequality in Sri Lanka in terms of policy implications.

1.4 Objectives of the study

The overall aim of the current study is to examine the poverty impact of agricultural trade liberalisation in Sri Lanka.

In order to achieve this aim, the specific key objectives of this study are to:

1. Identify the poverty determinants in Sri Lanka and observe changes in the determinants and their behaviour over time and over economic sectors¹⁰ and over expenditure deciles since the second wave of trade liberalisation in 1990. This will build a platform on which to analyse the poverty impacts of agricultural trade.
2. Explore the economic impact of temporary labour migration from rural to urban areas on the migrant-sending communities, paying particular attention to the economic gains of migration and the determinants and usage of remittances in rural farm communities in Sri Lanka.
3. Assess the poverty impact of future agricultural trade liberalisation by developing and using a GTAP-POV framework for Sri Lanka, based on the GTAP database and HIES data.
4. To examine the origin of the problem of poverty in Sri Lanka and poverty-focused policies since the colonial period, with a view to obtaining relevant and important policy lessons.

¹⁰ There are three economic sectors in Sri Lanka; urban, rural and estate. The Department of Census and Statistics defines the urban sector as 'area[s] governed by either Municipal or Urban Council[s].' The estate sector is 'plantation areas which have more than 20 acres and having more than 10 residential laborers with a single administration body', and the rural sector is 'residential areas which do not belong to urban or estate sectors'.

1.5 *Research methodology*

Both primary and secondary data are used to explore the above research questions and achieve the research objectives, using econometric analysis and global Computable General Equilibrium (CGE) analysis, which are described in detail in the relevant chapters. Reimer (2002) and Hertel and Reimer (2005) demonstrate that any analysis of trade and poverty needs to be informed by both bottom-up and top-down perspectives. Accordingly, this study involves CGE analysis incorporated with detailed disaggregated household survey information, computed through econometric methods as explained in the relevant chapters. Full details of each of these research methods and models are presented in the appropriate chapters; only a brief overview is provided here.

To achieve the first objective of identifying the poverty determinants in Sri Lanka and the changes of the determinants over time, over the sectors, and over the expenditure deciles, this study has employed four sets of disaggregated Household Income and Expenditure Surveys¹¹ (HIES) data from 1990/91, 1995/6, 2006/7 and 2009/10 conducted by the Department of Census and Statistics in Sri Lanka. Although HIES has been conducted as an independent survey in Sri Lanka since 1990, it was started in 1980 as a Labour Force and Socio-Economic Survey and conducted once every five years until 2006/7.¹² The latest survey was done in 2009/10. The HIES is a one-year-long sample survey which is conducted in 12 consecutive monthly rounds, using

¹¹DCS Sri Lanka conducted a HIES once every five years until 2006/07. However, the latest HIES, which covered the whole of Sri Lanka, was conducted in 2009/10 and the time period was altered to once every three years.

¹² Due to the rapidly changing economic conditions, the Department of Census and Statistics decided to conduct HIES once every three years after 2006/7. Hence the latest HIES was conducted in 2009/10, but micro level data is still not available for public use.

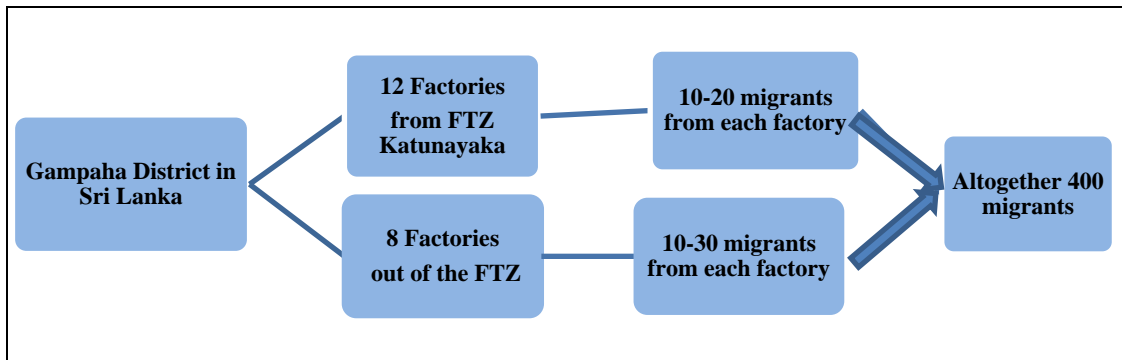
personal interviews, to capture seasonal and regional variations in income, expenditure and consumption patterns. Sample selection for this survey has been implemented according to proportional allocation of housing units in each district. This survey provides detailed information on household income and expenditure in order to measure the living standard of the people from different perspectives in Sri Lanka (DCS, 2011). Probit regression analysis, Ordinary Least Square analysis and Quintile Regression analysis is used for the analysis of poverty determinants using HIES 1990, 1995, 2006 and 2010, with the help of Stata software. Furthermore, POVCAL software has been used for the analysis of poverty decomposition.

To achieve the second research objective of this study, I undertook a field survey¹³ to generate data. This field survey was conducted in Gampaha District in Sri Lanka aiming at factory workers who had temporarily migrated from farming families in the rural sector to the cities for industrial employment. A non-random sample of four hundred respondents was interviewed, using a structured questionnaire, from a sample of 20 factories (Figure1-1), of which 377 questionnaires could be assessed. Respondents were interviewed on a face-to-face basis using a pre-tested, structured questionnaire. Although this was not a representative sample of the total factory worker population in Sri Lanka, due to the restrictions imposed by the factories on workers being involved in interviews, this survey involved the largest sample of migrant workers so far interviewed with a focus on the economic impact of rural-to-urban labour migration in Sri Lanka. Tobit regression analysis, linear regression

¹³ The field survey and the structured questions were accepted by the Human Research Ethics Committee of the University of Waikato NZ.

models, probit regression models, Mincerian equation models and Chow tests were employed to achieve the objectives of the study using rural-to-urban labour migration sample survey data.

Figure1-1: Sample frame for field survey of rural-to-urban labour migration in Sri Lanka 2010



Source: Compiled by the author

The interviews were conducted with the help of five post-graduate qualified research assistants from the University of Kelaniya, Sri Lanka. Most of the interviews inside the Free Trade Zone (FTZ) at Katunayake were done by the author alone due to entry restrictions. Thus, the accuracy of the survey information is presumed to be very high.

To achieve the third objective of developing a GTAP-POV framework to analyse policy outcomes for Sri Lanka, HIES 2006/7 data was calibrated with data from the Global Trade Analysis Project (GTAP), which can be used to support the GTAP-POV model. I used HIES 2006/7 data obtained from the Department of Census and Statistics (DCS) in Sri Lanka. This survey year was selected to match the latest

available GTAP data in 2007. Econometric modelling is used for the poverty elasticity calculations, while GEMPACK software, using the RunGTAP interface, was used to operationalize the GTAP-POV model.

The policy analysis chapter (fourth objective) was developed by using secondary sources of information and analysed with input from the author's field experience and modelling work in earlier chapters.

1.6 Significance of the study/Contribution to the existing literature

International trade is considered the main engine of economic growth for the majority of the world's economies, particularly in the Asia-Pacific region. It has enabled them to reduce poverty significantly within the last twenty years, promoting economic growth through improvements in technology, Foreign Direct Investment (FDI), business networks and competition, as well as promoting efficient and cost-effective production in the long run (Ratnayake, Ratna, & Ferracane, 2013, p. 13). Also, agricultural trade liberalisation can be used as a development strategy and a policy implication for poverty reduction in developing countries. Thus, it is very important for policy makers to evaluate the socio-economic impact of these economic policies on household economies for further implications, particularly on poverty reduction and income distribution issues.

Developing economies place great emphasis on assessing poverty and on the income distribution consequences of trade liberalisation and their domestic policy reform

efforts. This growing interest has fuelled a wealth of empirical studies on the links between trade policy and complementary domestic policies and their impacts on inequality and poverty (Hertel, 2006; Hertel & Reimer, 2004b; Winters, 2000).

International agencies such as the World Bank, policy makers and academia have all advocated a closer integration of rural producers and the agricultural sector of developing countries with the national and international market, assuming that this is an essential route for the rural population to get out of the cycle of poverty. There are, however, two increasing concerns: firstly, the barriers against market access remain strong, particularly in the developed countries, which maintain massive domestic support of agriculture, limiting the export opportunities for the developing countries' agricultural products; and secondly, despite the continued protectionism in the rich countries, developing countries have increasingly liberalized their agricultural imports, and opened themselves to the risk of cheaper imports competing with and often displacing the products of local farmers (Network, 2006).

Since the Uruguay Round Agreement on Agriculture (URAA) initiated trade liberalisation in agriculture in 1995, there has been substantial concern in developing countries about its poverty implications. Most of the major international agencies have shown that trade policies in developing countries have allocated considerable resources to poverty implications, and consequently, poverty impacts had been given top priority in the Doha Rounds of WTO talks (Hertel, 2006). Sri Lanka has implemented major trade policy reforms to form an internationally competitive environment for Sri Lankan agricultural and manufacturing products since its

economic liberalisation in 1977. In these economic policy reforms, protection for import competing sectors and provision of incentives to export-oriented sectors have been introduced, while liberalizing exchange rate regimes through fiscal and monetary reforms, liberalizing domestic factor and product markets from government intervention, and privatizing some government business enterprises (Gunawardana & Somaratne, 1999).

The first two trade-poverty linkages introduced by Winters¹⁴(2000a) can be examined through analysis of the impacts of agricultural trade liberalisation on poverty in Sri Lanka, particularly household welfare in the rural sector. Since households in Sri Lanka are very diverse, there is a high tendency for them to be affected in different ways by agricultural reforms. The majority of the poor in Sri Lanka are in rural areas and as agriculture remains the most important activity for them, this study will mainly focus on rural households. Nearly 80 per cent of the population in Sri Lanka lives in rural areas and most of these people primarily depend on agriculture for their livelihood. Thus, Sri Lanka is an interesting case study as it has engaged in liberalisation of trade for 30 years and was the first country in South Asia to do so.

It is important to note that when the impact of trade liberalisation on poverty and inequality is analysed, the effects of trade reform on different sectors and different income groups depend on who initially benefited from trade protection. Therefore, to

¹⁴ As Winters (2000a) indicates in his study, the first two linkages are: 1) the consumer price and availability of goods; 2) factor prices and quantities employed.

understand how trade reforms affect the poor, both macro- and micro-level analysis is required. Even when the poor as a group benefitted from trade liberalisation, some strata of society could face significant challenges. As trade liberalisation affects consumers and producers differently, identifying those who are most likely to suffer short-term damage can help policymakers to formulate effective poverty safety nets. Meanwhile, tariff reduction on imports may bring either welfare gains or losses to consumers, while many producers may be affected either adversely or positively by such trade policy reforms. Therefore, it is imperative to study both consumer and producer perspectives closely in order to examine the household welfare effects of trade liberalisation.

It is widely believed that economic growth is a necessary condition for the process of alleviating poverty and that trade liberalisation is a pre-condition for sustainable economic growth. Therefore, it is imperative to understand the importance of trade liberalisation and to implement economic strategies and policies to reduce poverty and inequality. The focus of the present study is to examine whether agricultural trade liberalisation brings greater welfare to the overall economy, and in particular, to the poorest members of society in the rural sector. Furthermore, the GTAP-POV framework provides comprehensive insights for development policy makers in Sri Lanka on the trade impact of poverty in particular, and for the South Asian region and other developing nations in general in finding development strategies to reach the first Millennium Development Goals (MDGs): to eradicate extreme poverty and hunger.

Although Sri Lanka has a rich and constantly updated poverty profile, no attempt has yet been made to explore the behaviour of the poverty determinants of different income groups in Sri Lankan society. This new dimension in the poverty profile will pave the way to formulating new poverty reduction policies for specific income groups in Sri Lanka. In particular, the rural poverty issue will be addressed through these diversified income groups, as the eradication of rural poverty remains a major challenge for policy decision makers in post-war Sri Lanka.

Current studies on poverty determinants are not sufficient to generalise the factors affecting poverty in any country or the group of people, as they differ according to the characteristics of the people. Thus, poverty reduction strategies need to identify the factors that are strongly associated with household poverty in order to enable better and effective policy making. This study attempts to explore the changes in the poverty determinants over the years, over the sectors and over income deciles in Sri Lanka, for the first time.

As the poverty determinants have indicated that remittance has played an important role in poverty reduction in the last two decades in Sri Lanka, this study will focus on how remittances affect poverty reduction in Sri Lanka, paying particular attention to rural-to-urban labour migration.. As far as labour migration is concerned, it is undisputedly accepted that migration contributes to the development of a country. However, the potential impact of rural-to-urban migration on both source and destination areas is yet to be investigated in a context where the effects of migration and remittances are expected to vary with the characteristics of the context. Since Sri

Lanka is a country with high regional disparities,¹⁵ rural-to-urban migration is a common phenomenon. Moreover, the higher demand for skilled and unskilled labour generated by economic liberalisation has accelerated rural-to-urban migration in Sri Lanka tremendously.

The population of factory workers shows that significant numbers of rural labourers have shifted from villages to cities since economic liberalisation in Sri Lanka. Nevertheless, there has been no substantial attempt to identify the number of migrants and to quantify the impact of rural-to-urban migration and remittances on their communities of origin in Sri Lanka. The poverty profile in Sri Lanka shows that poverty determinants have changed considerably over the last two decades(Ranathunga & Gibson, 2014; 2015)¹⁶ and the contribution of both internal and international remittances on poverty reduction has also been noteworthy. Even though some researchers have attempted to explore the impact of international migration and remittances on the welfare of the poor and the development of Sri Lanka (Athukorala, 1990; Shaw, 2010; Ukwatta, 2005, 2010), there is a dearth of empirical studies examining the impact of rural-to-urban migration on the well-being of the poor. The aim of this research is to evaluate the economic impact of rural-to-urban labour migration and urban-to-rural flow of remittances on the development of the rural sector in Sri Lanka.

¹⁵Refer to Table 3.2 for regional disparities in Sri Lanka.

¹⁶ Chapter three discusses more details on poverty determinants and their changes over time and sectors in Sri Lanka.

The present study explicitly analyses the direct impacts of internal migration on the community of origin. Hence, the originality of this research can be justified as a contribution to the literature through empirical research focusing on rural-to-urban migration in Sri Lanka. Further, the rural-to-urban migration process and its economic impact on Sri Lankan farming communities are examined empirically with a view to proposing a research agenda to address the policy implications of rural-to-urban migration for rural development (poverty alleviation in the rural sector) in Sri Lanka. The findings of this research and their implications contribute significantly to the literature on rural-to-urban migration and poverty in Sri Lanka.

In addition, poverty changes in Sri Lanka were examined within a GTAP-POV framework for the first time using HIES data following Hertel's approach (Hertel, Verma, Ivanic, & Rios, 2011). Policy analysis has been done focusing on the origin of the problem of poverty and poverty-focused policies since the colonial period in Sri Lanka, to provide recommendations for poverty reduction, particularly in the rural sector.

1.7 Organization of the thesis

In the following chapters, Chapter Two reviews the literature on trade and poverty. The chapter summarizes theoretical and empirical literature on trade and poverty, focusing on trade-poverty links and how trade liberalisation in general and agricultural trade liberalisation in particular affect household welfare in developing countries.

Chapter Three discusses the poverty determinants in Sri Lanka in the last two decades (since the second wave of liberalisation). Also, it examines the behaviour of these poverty determinants and their changes over time, over the sectors and over the income deciles. It further examines the changes in inequality by decomposing poverty into growth and redistribution factors in Sri Lanka using POVCAL software. Four disaggregated national survey data sets; HIES 1990/91, 1995/6, 2006/7, 2009/10 were used for this analysis. A review of literature on poverty and empirical studies on poverty determinants is also presented.

Chapter Four presents the results of the field survey on the impact of rural-to-urban temporary labour migration on migrant-sending communities in the rural sector in Sri Lanka. This includes a review of migration literature and empirical studies on rural-to-urban labour migration. The results of this analysis depict the determinants of urban-to-rural remittance flow and the net income gains of rural-to-urban temporary labour migration in Sri Lanka. I also analyse the determinants and usage of urban-to-rural remittance to see the impact of rural-to-urban migration on migrant-sending communities.

Chapter Five focuses on developing a GTAP-POV framework for Sri Lanka. Poverty shares of seven income strata and poverty arc elasticities are calculated and decomposed into factor earnings by reconciling HIES 2006/7 data with GTAP data. Further, for looking to potential future poverty changes, I examined the impact of

trade liberalisation, particularly agricultural trade liberalisation, on poverty in Sri Lanka by using six scenarios modelled within the GTAP-POV framework.

Chapter Six is an analysis of the origin of the problem of poverty in Sri Lanka and poverty-focused policies since the colonial period. This chapter reviews most of the poverty reduction policies and their applicability and contribution to poverty reduction in Sri Lanka since independence, while also discussing colonial poverty policies. Also, recommendations and discussion of key areas for future research into the reduction of rural poverty in Sri Lanka are presented in the context of insights developed throughout my thesis.

Chapter Seven presents my conclusions, along with discussion of the limitations of the current thesis and fruitful areas for further research.

Chapter 2: Poverty impacts of agricultural trade liberalisation in Sri Lanka: A review of the literature

2.1 *Introduction*

This chapter presents a comprehensive review of the theoretical and empirical literature on trade-poverty linkages in general, with a particular emphasis on the effect of agricultural trade liberalisation on poverty in Sri Lanka. The impact of trade liberalisation, particularly the impact of trade policies in developed countries and poverty in developing economies, is strongly debated in the international trade and development arena. Hence, considerable attempts have been made to explore the poverty and inequality impacts of trade liberalisation in developing countries in recent studies. Investigations have identified both positive and negative impacts of trade liberalisation (Hertel et al., 2001; Winters et al., 2004) and a range of different techniques has been used to capture the poverty and inequality impacts of trade liberalisation (Hertel, 2006; Hertel & Reimer, 2004a; Naranpanawa, 2005; Reimer, 2002; Winters et al., 2004).

Reimer (2002) summarized and classified literature on the poverty impacts of trade liberalisation into four methodological categories: cross-country regressions, partial equilibrium/cost-of-living analysis, general equilibrium simulations, and micro-macro syntheses. These can be further classified into two main categories: 1) the bottom-up approach which uses econometric analysis of household expenditure data; and 2) the top-down approach which uses computable general equilibrium models based on

national accounts data, with both of these perspectives making important contributions to any analysis of trade and poverty (Hertel and Reimer (2005); Reimer (2002).

2.2 *Trade–poverty linkages*

Trade is considered to be an important tool for poverty reduction (Ratnayake et al., 2013). However, trade–poverty linkages are complex and diverse. The first trade–poverty linkage is at the border. When a country liberalizes its own trade policy by, for example, reduction of import tariffs, this result in lower prices for imported goods at the border. When other countries liberalize their trade policies, this affects the border prices of goods imported and exported by the country (FAO, 2005, p. 64)¹⁷. Then focus is needed on how prices are transmitted to producers, consumers, and households in general. The local market price changes will determine the impact of trade liberalisation on households. Households that are net sellers of products whose prices rise in relative terms benefit in this first round, while the net purchasers of such goods lose (FAO, 2005, p. 66). Although there may be a positive relationship between trade liberalisation and poverty reduction (Bouët, 2008, p. 3), it can be complex. The gains from trade liberalisation may be distributed unevenly among developing nations and household groups, even within the same country (Gerard & Piketty, 2007).

¹⁷http://www.unep.org/training/programmes/Instructor%20Version/Part_2/Activities/External_Drivers/Trade/Supplemental/Poverty_Impacts_of_International_Trade_Reforms.pdf

Within the literature on trade and poverty, a number of key linkages can be identified (Reimer, 2002; Winters et al., 2004):

- (a) consumer prices and the availability of goods;
- (b) factor prices and quantities employed;
- (c) government taxes and transfers influenced by changes in revenue from trade-related taxes;
- (d) terms of trade and other external shocks;
- (e) incentives for investment and innovation that affect long-run economic growth;
- (f) remittances; and
- (g) short-run risk and adjustment costs

The traditional argument in favour of a positive relationship between trade liberalisation and poverty focuses on the first two linkages (a) and (b). In most developing economies, a large number of poor people are employed in the agricultural sector where trade distortions are particularly high. Trade liberalisation could imply higher world agricultural prices and raise activities and remuneration in the agricultural sector in these countries.

The empirical approach developed by Winters (2000a) and also used by (Niimi, Dutta, & Winters, 2007) explores the connection between trade liberalisation and poverty via certain identified links. The assumption is that liberalisation impacts households through the intermediary of products and factor markets. One of the key static channels through which trade liberalisation affects the poor and the most

vulnerable groups is the fiscal channel (Winters, 2000a). Sectors of immense importance to poor households can be impacted through government revenue and expenditure programming. Furthermore, it is assumed that an increase in trade shifts incentives towards the tradable sector and would therefore cause employment to increase within that sector. The increased employment will then translate into increased incomes which will help to reduce poverty. Price changes impact on households, both as producers and consumers, as a result of trade-induced effects. Households may benefit from low prices of imported goods and substitutes for imported goods by increasing their real incomes as a result of lower tariffs on imported goods and services (Bannister & Thugge, 2001). Furthermore, there may be significant benefits for net producers of exports (especially in agriculture) from removing export taxes or restrictions. If such action increases the price producers receive and stimulates the production of exportable products, it can lead to an increase in employment and in the income of the household. However, the net effect of the benefits and losses that accrue to households as a result of opening up trade and easing tariffs is thought to be dependent on whether households are predominantly consumers or producers (Winters, 2000a).

The number of people in the world living in absolute poverty has increased throughout the nineteenth and twentieth centuries (Bouguignon & Morrisson, 2002). Sala-i-Martin (2002) shows substantial variation in poverty by region, with Asia achieving some significant success, especially after the 1980s. While Latin America reduced poverty considerably in the 1970s, progress stopped in the late 1980s and 1990s and the worst case was Africa where some poverty rates have increased since

the 1970s (Sala-i-Martin, 2002). Further, the evidence presented in this study suggests that economic growth differences have been largely responsible for the differences in poverty alleviation across regions. Initiatives that boost national economic growth rates are therefore likely to be helpful in the fight against poverty, *ceteris paribus*. Trade liberalisation is one such initiative that tends to boost economic growth (De Silva, Malaga, & Johnson, 2012). However, it also alters relative prices, so its net effect on poverty reduction depends also on the relative product and factor price changes. If the price changes are pro-poor, then such changes will reinforce the positive growth effects of trade reforms on the poor (Anderson, 2004).

Justino and Litchfield (2002) studied poverty dynamics in Vietnam during the ‘Doi Moi’ renovation period, with the aim of identifying the winners and losers from the economic and trade processes implemented in Vietnam in the late 1980s. They used multinomial logit models and found that poverty in Vietnam was correlated with demographic shocks, changes in main occupation of the head of the household, educational level of the household head and their spouse, household liabilities, infrastructure and institutions, as well as changes brought about by the economic reforms. This kind of country-specific study can provide estimates of the relative risk of households escaping or falling into poverty with policy changes.

2.3 *The role of trade and agriculture in poverty reduction*

As is the case with trade–poverty linkages, the economic linkages between agriculture, trade and poverty are also complex. Brooks (2003, p. 9) pointed out that agricultural trade reforms have a complex range of distributional effects. The effects are of crucial significance in economies where food and agriculture figure prominently in people’s lives, either as a main source of their livelihoods or their main component of expenditure (FAO, 2005). Hence, agricultural policies in developing nations like Sri Lanka need to focus on the incomes of rural households. More than two-thirds of the world’s poor population lives in rural areas (Brooks, 2012, p. 3) Therefore, earning higher agricultural incomes by increasing real GDP through agricultural surpluses generated by increased production, and using surplus labour from the sector are leading factors in poverty reduction (De Silva et al., 2012).

Poverty is observed as being multidimensional and dynamic, with large numbers of vulnerable households moving in and out of poverty over time. The development literature focuses on seeking a better understanding of the links between poverty, economic growth, income distribution and trade. Since more than two-thirds of the world’s poor population lives in rural areas (Brooks, 2012, p. 3) and their main source of income is directly or indirectly related to agriculture, agricultural growth is particularly important for poverty reduction in developing countries. Furthermore, the

central role of agriculture in supporting poverty reduction is underlined by the relative economic importance of the sector in developing countries (FAO, 2005)¹⁸.

The effects of agricultural trade liberalisation on household welfare through price changes of tradable goods are an important area for study. Trade liberalisation, including reductions in tariffs, may affect the prices of goods consumed and produced by households. The key issue is how the changes in tax and border prices are eventually transmitted in terms of effects on wholesale and retail prices, and thereby on household welfare. However, the effects on household welfare will not only depend on price changes and their transmission, but also on whether these households produce or consume the products concerned and to what extent.

The post-tariff border price of goods is impacted by a combination of the exchange rate and the tariff the good faces. When we add this border price to domestic taxes and transportation/distribution costs from the port to major distribution centres, we get the wholesale price. Then we obtain the retail price by adding various other taxes and regulations and the cost of further transportation/distribution. At the retail level, the goods will be distributed to households and individuals. The impact of price changes for a particular good on the welfare of the household will depend on the relative importance of the good concerned as a source of income to the household and its importance in the household consumption basket. For example, if the price of rice increases, then the net producers of rice will benefit while net consumers will lose.

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http://www.unep.org/training/programmes/Instructor%20Version/Part_2/Activities/External_Drivers/Trade/Supplemental/Poverty_Impacts_of_International_Trade_Reforms.pdf

However, the extent of gain or loss due to price increases for rice will depend on how much the income of the household relies upon the production of rice and how important rice is in the household's consumption basket (Abuka, Atingi-Ego, & Opolot, 2007; McCulloch, 2003). Thus, to analyse this situation for Sri Lanka, it is needed to consider the contribution to household income of different income sources and the household expenditure shares for different consumption items.

Mittal's (2007) analysis used an approximation of general equilibrium in four parts, emphasizing the welfare of producers and with the main focus on small farmers. The first part was the estimation of the world price effect of Organization for Economic Co-operation and Development (OECD) distortions. The second was the estimation of the effects of changes in world prices on domestic prices through a price transmission model. The third was the estimation of impact on domestic production through a supply response model. The fourth was the estimation of the effect of changes in supply and welfare on poor small farmers. The welfare results of Mittal's (2007) study in India showed that the net impact of either of the policy changes on small farmers who were cultivating rice or wheat was very small and almost negligible. His most important finding was that the policies of developed countries protecting their farming sectors critically affect the lives of billions of people who depend on agriculture in developing countries.

Summing up the literature on the poverty/inequality impact of agricultural liberalisation, Hertel (2006) argued that agricultural trade liberalisation can have an important impact on poverty and inequality. Most of the world's poor live in rural

areas where the dominant livelihood is farming; therefore trade reforms that boost agricultural prices tend to reduce poverty. Hertel further emphasized that the specific impacts of agricultural reforms depend on a number of factors. In particular, the extent of price transmission from the border to local markets, poor infrastructure and high transaction costs serve to insulate rural consumers from world price changes. Households' capability to adjust to price changes will vary across countries, localities and types of households. If a farming household can increase the supply of products whose price has gone up and reduce their consumption of the same goods, then gains will be increased while losses are reduced. Besides, this gain also will be greater than their access to credit. Consequently, Hertel (2006) shows that labour markets play an important role in determining the poverty impacts of trade liberalisation in the medium run, while in the long run, poverty reductions from trade reforms hinge critically on economic growth. Furthermore, (Hertel, Keeney, Ivanic, & Winters, 2009) and Hertel, Keeney, Ivanic, and Winters (2007) analysed the impact of multilateral trade policy reforms on a sample of fifteen developing countries, employing macro-micro modelling strategy beginning with specification of utility function and an associated consumer demand system for poverty using An Implicitly Additive Demand System (AIDADS) system to represent consumer preference. Their research found that tariff cuts under the Doha reforms may hurt the poor who are working in agriculture and also argued that the Doha Development Agenda (DDA) is fundamentally less poverty-friendly than it could be, due to the absence of tariff cuts on staple food products in developing countries and proposed deeper tariff cuts in developing countries' agricultural systems to encourage being poverty-friendly.

2.4 *The importance of empirical case studies and field work*

Most of the economic literature considers that trade liberalisation leads to an increase in welfare, derived from an improved domestic resource allocation. Import restrictions of any kind create an anti-export bias by increasing the price of importable goods in comparison to exportable goods. The removal of this bias through trade reforms will move resources from the production of import substitutes to exportable goods, which will generate growth in the short and medium run¹⁹ (McCulloch, Winters, & Cirera, 2001). Further, they noted that there is no evidence to conclude that trade liberalisation generally has an adverse impact on the poor. However, how trade reforms affect poverty in any individual country depends on the country's specific characteristics and on the nature of its poor citizens. McCulloch *et al.* further explain that even where poor households as a group benefit from trade liberalisation, specific segments of the poor may suffer serious harm from it. The impact on different groups, both between the poor and the non-poor and among different sub-groups of the poor partly depends on who benefits from the current form of trade protection. Identifying which groups are likely to suffer short-term harm helps in designing appropriate safety nets beforehand. Therefore, trade reform is an important part of a pro-poor development strategy compared with many other policy reforms because it can be adopted relatively quickly and easily.

¹⁹ www.unctad.info/upload/TAB/docs/TechCooperation/fullreport-version14nov-p106-119pdf (accessed 30th September 2014)

This section will scrutinize case studies in the field which attempt to capture the poverty effects of agricultural trade liberalisation. To understand the effects of trade reforms on specific segments of the country, it is useful to go beyond macro-level generalization. There is a need to be clear about the specific circumstances of the people concerned; therefore fieldwork is important to support insights. A considerable amount of field work has been carried out to analyse the poverty and inequality impacts of agricultural trade reforms, but very little has been done specifically in Sri Lanka.

Maertens and Swinnen (2009) provided empirical evidence on the effects of the growing importance of public and private standards in trade in Senegal using micro-data. They conducted a household survey from August to September 2005 to measure the effect of fresh and processed fruit and vegetable exports on local households. Their research area included three rural communities in the region of Dakar. They randomly selected 25 villages out of 115 in these three rural communities, including 300 households in their sample for the econometric model they employed. This study revealed that poorer households benefited from agricultural export development through the labour market rather than through product markets. In addition, the results of this study demonstrated that support of high-standard exports can be a pro-poor development strategy.

The UNEP (2005) study on the impact of trade liberalisation on the rice sector in Indonesia used a sample survey for the analysis. This analysis was carried out with the main objective of examining whether the WTO's Agreement on Agriculture

(AoA) would truly have an effect on reducing the price of rice and causing farmers to convert from rice crops to other more profitable crops. Primary data was collected from four rice-growing villages in four different districts involving 261 farmers. Using a range of methodologies, the study examined the economic, social and environmental impacts of trade liberalisation. The researchers concluded that implementation of the AoA has tended to cause the real price of rice to decrease, which may drive farmers out of the rice production and into other sectors that offer better sources of income.

The Third World Network (TWN) Report (2006) on the impact of globalization, liberalisation, protectionism on poor rural producers in developing countries presented the results of a survey of the experiences of small rural producers in developing countries and their interactions with the market, in the context of increasing liberalisation and globalization. The TWN study focused on the following objectives: (a) investigating the problems encountered by producers in marketing their products, firstly in their local and national markets and secondly in the global market; (b) examining cases where rural producers faced competition from imports, which could reduce their incomes or even displace them from their livelihoods; (c) providing some examples of innovative ways in which rural producers were attempting to find a beneficial place in the market. The study summarized the results of research on the poverty impact of agricultural reforms in several industries that are affected by cheap imports in Latin America and the Caribbean, Africa, Arab countries and Asia. The study confirmed that there have been many field surveys carried out by different national and international agencies and academic groups recently.

2.5 *CGE analysis of poverty impacts of trade liberalisation*

CGE modelling incorporates many important economic interactions and is a comprehensive way of modelling the overall impact of policy changes on the economy. These models are well suited to explain medium to long-term trends and structural responses to changes in development policy. Therefore, empirical studies have increasingly used CGE models as an analytical tool to address trade and poverty links using cross-country or/and single country data. Although there are very limited studies using CGE analysis to examine the poverty impacts of trade liberalisation within the Sri Lankan context (Narampanawa, 2005; Perera, Siriwardana, & Mounter, 2014), there have been many studies in other parts of Asia and the rest of the world (Boccanfuso & Sevard, 2007; Cicowiez, Diaz, & Diaz, 2008; Cockburn, 2001, 2002; Cororaton, Cockburn, & Corong, 2005; Hassine, Robichaud, & Decaluwé, 2010; Hertel & Keeney, 2010; Strutt, 2008; Strutt, Hertel, & Stone, 2010). This literature indicates growing interest among various research organizations and academia in using CGE models to assess the impact of policy changes; in particular, the poverty impact of trade liberalisation.

These studies have followed a variety of model specifications to capture poverty and inequality effects (Bouet, 2006). Most of the studies have tried to develop micro-simulation CGE models to capture the country-specific nature of the poverty and inequality associated with trade reforms using household survey data (Boccanfuso, Decaluwe, & Savard, 2008; Boccanfuso & Sevard, 2007; Cockburn, 2002; Davis,

2004; Savard, 2003). Boccanfuso and Sevard (2007) constructed a CGE model of Mali, including a micro-simulation component for analysing the poverty and inequality impact of removing cotton subsidies. Their study used 17 sectors and 5000 households to construct a CGE model. They found that removing cotton subsidies contributed to significant declines in poverty in Mali. Further, their study showed that removing subsidies would marginally contribute towards the reduction of inequality in Mali. A similar CGE micro simulation study has been carried out for Nepal, incorporating survey data from 3373 households into a social accounting matrix (SAM)-based CGE Model (Cockburn, 2002). Cockburn concluded that trade liberalisation favours urban households and reduces poverty in urban areas while increasing poverty in rural areas. Moreover, he noted that the impact of trade liberalisation on income distribution and poverty is complex and that fully disaggregated models are necessary in understanding the linkages.

Aredo, Fekadu, and Workneh (2007) presented a similar study of the Ethiopian economy. They used CGE analysis based on the Ethiopian Household Income and Consumption Expenditure Survey of 1999/2000 and showed that rapid trade liberalisation may have adverse effects on domestic production and investment, due to fierce competition from relatively cheap and better quality imported goods. In particular, the textile, leather and food processing industries are likely to shrink further in the face of cheap imports. The simulation results suggest that trade liberalisation is likely to affect the prices of those commodities that constitute the bulk of the expenditure of the poor. They argue that these price increases may lead to welfare loss for the urban poor and in food deficit households. Similarly, a study

conducted by Cicowiez et al. (2008) in Argentina shed light on the distributional, inequality and poverty effects of trade policies, particularly those related to agriculture in Argentina. As a large agricultural exporter, Argentina is an interesting case study for the examination of trade poverty links. The simulation followed a top-down approach combining a CGE macro model with a partly-econometric micro simulation model. This study concluded that export taxes help to reduce poverty and inequality, generating additional employment opportunities that the production and export of raw materials would not provide, and help support a more competitive exchange rate.

Mujeri and Khondker (2002) examined the poverty impacts of liberalisation through a CGE framework as a part of “Exploring the links between Globalization and Poverty in South Asia”. This work is based on a 1995/96 SAM of the Bangladesh economy. They concluded that the poverty of all household groups was reduced due to the high growth in income resulting from the policy change. Urban households gained more than rural households and the gains in terms of poverty reduction accrued more to the relatively well-off households. They found the highest reduction in the incidence of poverty was for medium-skilled workers, followed by professionals and large farm households due to resource reallocation from the agricultural and manufacturing sectors to the services sector. Trade policy reforms which lead to changes in the world prices of agricultural commodities or domestic policies aimed at affecting agricultural prices are often seen as causing a policy dilemma: a fall in agricultural prices benefits poor urban consumers but hurts poor rural producers (Polaski, Manoj, Ganesh-Kumar, & Sherman Robinson, 2007).

Polaski et al. (2007) also pointed out that poor countries have argued that they need to be able to use import protection and/or price support policies to protect themselves against volatility in world agricultural prices in order to dampen these effects. They explored this dilemma in a CGE model of India that used an SAM developed at the Indira Gandhi Institute of Development Research (IGIDR) in Mumbai. The SAM included extensive disaggregation of agricultural activities, commodity markets, labour markets, and rural and urban households. The results show that the inclusion of linkages between rural and urban labour markets is necessary to fully explore and potentially eliminate the dilemma. A fall in agricultural prices hurts agricultural producers, lowers wages and/or employment of rural labour and in some cases spills over into urban labour markets, depressing the wages and incomes of poor urban households as well. In these cases both rural and urban poverty increases. The paper explores the strength of these commodity and factor market linkages and the potential spill over effects of policies affecting agricultural prices.

Although trade liberalisation may improve economic welfare and reduce poverty, it is not a foregone conclusion and is therefore necessary to measure the impact clearly. Although there are a number of ways to measure policy reforms, the most appropriate way of assessing the consequences of the trade policy reforms on poverty is CGE modelling. The CGE literature shows that the impact of trade reforms on poverty and inequality differs according to the characteristics of the economy or the population group; one country gains through agricultural trade reforms while another country loses. At the same time, within the same country, some groups of people gain through agricultural trade liberalisation while others lose. Hence, it is still unclear whether

agricultural trade liberalisation reduces poverty in all countries, and there is a need for country-specific, detailed poverty analysis.

2.6 *Agricultural trade liberalisation and poverty in Sri Lanka*

Sri Lanka was considered a subsistence agriculture-based economy using paddy as the major agricultural crop before the Western colonial powers intervened. The structure of the agricultural sector changed during the period of colonization (1510-1948) and post-colonization (1948 onwards) (Mudalige & Somarathne, 2005, p. 1). As a result, plantation crops were introduced, contributing more to production, employment and trade in Sri Lanka.

Sri Lanka historically relied on imports to supplement domestic production of several major and basic food commodities such as rice, milk and fish. Since Independence in 1948, Sri Lanka's food security strategy has been based on three major policies: achieving self-sufficiency in basic food items; public distribution systems for procurement and marketing of paddy and other commodities; and welfare programmes involving a food subsidy, food stamps or income transfers (Kelegama, 2000). However, the Sri Lankan agricultural sector has come under heavy pressure from increasing competition arising from cheap imports due to import liberalisation. There are reports of protests by Sri Lankan farmers who were adversely affected by cheap imports. According to Raman (2004) and a Third World Network (TWN) report (2006), in August 1999 the protests were held first by potato farmers, then by

chilli and onion producers and thousands of small farmers who were worried about growing imports of chicken meat and eggs, and who took to the streets in April 1999, demanding the government place a ban on imports since these were affecting their livelihoods. The report added that with Sri Lanka's once-thriving poultry business buckling, farmers said that they were forced to sell below the cost of production. According to these studies, local farmers in developing countries are unable to produce food cheaper than their foreign counterparts and are demanding protection through higher import duties and lower local taxes and reduced tariffs on imported inputs.

Agriculture remains the way of life for the majority of the Sri Lankan population. Nearly three quarters of the population who belong to the rural sector are primarily engaged in agricultural activities as their main livelihood. Similarly, agriculture contributes one third of the total employment in Sri Lanka; this is the largest single-sector share. However, its overall relative significance in the economy is declining (Figures 4-1 and 4.2). The agricultural sector in Sri Lanka can be viewed as both socially and economically vulnerable because of the low level of commercialization, low productivity and weak market orientation, marginal uneconomical operational landholdings due to fragmentation, lack of infrastructure, heavy dependence on rainfall, susceptibility to natural calamities and the dependence of a large percentage of the population on agriculture for their livelihood²⁰. Nevertheless, the agricultural sector in Sri Lanka has the largest potential for poverty reduction in the rural areas as it absorbs the largest proportion of the poor workforce.

²⁰ See ftp://ftp.fao.org/upload/Agrippa/615_en.doc access date 19/10/2013

There have been many studies on trade liberalisation, poverty and inequality in the context of Sri Lanka. Some of these have attempted to link poverty status with education (Athurupane, 1998) health, (De Silva, 1998; Himaz, 2008; Perera, Gunatilleke, & Bird, 2007) and growth and development (Athukorala & Jayasuriya, 1994; Bruton, 1992). Some studies have attempted to describe the characteristics and current status of income poverty and consumption poverty in Sri Lanka (Edirisinghe, 1990; Gunawardena, 2000; Lakshman, 1997; Narayan & Yoshida, 2005). Similarly, a number of studies have examined the status of income distribution in Sri Lanka (Glewwe, 1986; Narayan & Yoshida, 2005). These studies have focused on historical trends and the current status of inequality in Sri Lanka. However, quite a few recent studies have attempted to examine inequality trends and poverty determinants in Sri Lanka (Gunatilaka, Chotikapanich, & Inder, 2005). Some have looked into the implications of economic reforms and trade liberalisation (Athukorala, 2006; Athukorala & Rajapathirana, 2000).

Among the limited studies on the incidence of poverty and inequality with respect to trade liberalisation in the Sri Lankan context, Narampanawa (2005) has attempted to analyse the effects of trade liberalisation on poverty in Sri Lanka using a CGE model to provide a broader perspective for the first time. He developed a multi-sectoral general equilibrium analysis within the SAM-based Computable General Equilibrium Model. The SAM for the Sri Lankan economy was prepared using the Income and Expenditure Survey data in 1995/96. Here, he has empirically estimated income distribution functional forms for different household groups and linked these to the

CGE model in a top-down mode. His results show that in the short run, trade liberalisation of manufacturing industries increases economic growth and reduces absolute poverty in low income groups. Moreover, the study indicates that in the long run, liberalisation of manufacturing industries is more pro-poor than that of agricultural industries. The overall simulation results from his study show that trade reforms may widen the income gap between rich and the poor, thus promoting relative poverty. He covered macro variables, industry level variables and agricultural level variables in this analysis. However, this analysis used HIES 1995 data for the SAM. Hence, it would not capture the real impact of agricultural trade liberalisation on poverty in Sri Lanka as the WTO's Agreement on Agriculture (AoA) was established in 1995 (TWN, 2006). The AoA set up a framework of rules and disciplines and initiated a process of gradual reductions in protection and trade distortions with a view to supporting agriculture at the end of 1999. Income groups also need to vary according to their source of income to more precisely reveal which groups are most affected by trade liberalisation.

In comparison to the study by Narampanawa (2005), Weerahewa (2006), used a recent data set for her analysis, focusing only on the rice market in Sri Lanka. She employed a general equilibrium model developed for the Sri Lankan economy using the input-output table for 2000 to analyse the economy-wide impacts of various policy packages on rice and related markets, which consisted of liberal as well as protectionist elements. This model consists of 5 sectors, 2 factors of production and households in 8 representative provinces in Sri Lanka. The results of her study indicated that removal of the import tariff on rice, along with removal of the import

tariff on fertilizer and/or subsidy payments on other agricultural sectors, could improve economic efficiency and household welfare across provinces. However, her study focused only on the rice market over the provinces and did not examine rice trade liberalisation effects on poverty using different income groups within society.

Rafeek and Samarathunga (2000) also explored trade liberalisation and its impact on the rice sector in Sri Lanka, using both nominal and effective protection rates that protected producers at the expense of consumers. They also showed that the area of farm land under rice decreased by 12 per cent and total production decreased by 16 per cent. Meanwhile, the demand for rice increased as a result of reduction in retail prices. Although overall welfare impacts revealed a gain to the nation, producers faced welfare losses in this study of trade liberalisation. However, Rafeek and Samarathunga (2000) did not employ CGE analysis or econometric modelling to capture the poverty and welfare effects on rice producers or the consumers. They simply relied on calculations such as the nominal protection rate (NPR) and the effective protection rate (EPR) in their methodology.

2.7 *Conclusion*

The literature on the poverty impact of trade liberalisation that has been reviewed in this section shows that trade liberalisation may have a significant impact on poverty reduction in developing countries, but the linkages can be complex. Agricultural trade liberalisation in particular tends to adversely affect small farmers in developing countries while large scale farmers/producers and the farmers from developed countries gain through agricultural trade liberalisation. Therefore, agricultural trade

liberalisation tends to support consumers while adversely affecting rural producers. However, country-specific studies are needed to explore the outcomes for particular groups in particular countries. Each and every policy reform will bring positive impact as well as adverse impact to society, depending on the economy and on the characteristics of the population group.

Methods used for analysing the complex poverty impacts of trade liberalisation include partial equilibrium models, econometric analysis, general equilibrium models, and micro/macro simulation models, which combine macro-level simulation with micro-level household models. Econometric analysis can be particularly useful for gaining insights into the impact of past reforms on poverty, while CGE techniques appear to have the best potential to predict poverty changes likely to result from future trade reform (Gilbert & Banik, 2010; Hertel & Reimer, 2005; Hertel & Winters, 2005).

The Sri Lankan literature on trade and poverty indicates that there have been limited studies using recent data, particularly after 2000. This study therefore contributes to the relatively sparse literature in the areas of econometric and field survey analysis, as well as CGE analysis, to examine the poverty impact of trade liberalisation in Sri Lanka.

Chapter 3: Determinants of household poverty in Sri Lanka and their behaviour: 1990-2010

To seek 'causes' of poverty.... is to enter an intellectual dead end because poverty has no causes. Only prosperity has causes. Analogically heat is a result of active processes; it has causes. But cold is not the result of any processes; it is only the absence of heat. Just so, the great cold of poverty and economic stagnation is merely the absence of economic development (Jacobs, 1969, p. 118).

3.1 Introduction

The United Nations recently announced that the number of chronically hungry people on the planet had exceeded the billion mark for the first time (Reinert, 2011, p. 22). There were 1.22 billion people living on under US\$1.25 a day and 2.4 billion living on under US\$2 a day in 2010²¹. Although we are in the 21st century, achieving sustainable economic growth by focusing on combating poverty still remains a key development goal for many economies. Attention has been particularly focused on poverty reduction following the United Nations declaration of its Millennium Development Goals (MDGs) in 2000, in particular Goal 1; “eradicate extreme poverty and hunger”. According to the Food and Agriculture Organization (FAO), most of the poor live in rural areas, often in isolated conditions, where they face problems including poor natural resources, underdeveloped infrastructural facilities, lack of access to markets, fluctuating commodity prices, lack of employment opportunities, and vulnerability to natural disasters (FAO, 2010). This plethora of

²¹ See <http://www.worldbank.org/en/topic/poverty/overview#1> (accessed 08 September 2014)

problems means that the definition of poverty is broader and more complex than simply lack of money, and the multidimensional nature of poverty is increasingly recognized²².

Analysis of the determinants of household poverty is imperative in order to develop strategies for efficient and effective intervention schemes aimed at poverty reduction. A key point in poverty analysis is the poverty profile, where poverty measurements provide significant yardsticks for understanding the nature of poverty, which differs from region to region and country to country. Since the poverty profile describes the pattern of poverty, understanding the poverty profile is vital for effective planning for poverty reduction in any country. However, poverty profiles are not principally concerned with the factors which determine household poverty²³ but instead represent more of a cross-sectional association between poverty and various characteristics. A satisfactory explanation of why some people are poor is essential to tackle the roots of poverty in any country; in particular, the correlates of poverty in a country/region/area are important in understanding the depth of the problem as the probability of being poor varies significantly with characteristics such as the location of the household and the education and employment of the head of the household and/or their spouse.

²² The World Bank has collected the 'voices of the poor' from 60 countries and describes poverty comprehensively as follows: "Poverty is hunger; lack of shelter; being sick and not been able to see a doctor; not being able to go to school and not knowing how to read; not having a job; fear for the future; living one day at a time; losing a child; illness brought by unclean water; powerlessness; lack of representation of freedom (Weeraratne, 2011)". http://www.island.lk/index.php?page_cat=article-details&page=article-details&code_title=36671

²³ Please refer to http://siteresources.worldbank.org/INTPA/Resources/429966-1259774805724/Poverty_Inequality_Handbook_Ch08.pdf

Poverty may be due to national, sectoral, community, household or individual characteristics. Therefore, many studies have attempted to explore the factors causing poverty in national and international arenas (Bhatta & Sharma, 2006; Datt & Jolliffe D., 1999; Epo & Baye, 2012; Jalan, Ravallion, & Unit, 1998; Okurut, Odwee, & Adebua, 1999; Rodriguez, 2002). However, since there is no reason to believe that the root causes of poverty are the same everywhere in the world, country-specific poverty analyses are indispensable in designing effective local poverty reduction programmes. Thus, this chapter attempts to identify and analyse the main factors which have determined household poverty in Sri Lanka within the last two decades, using four comparable household surveys conducted in 1990/91, 1995/96, 2006/07 and 2009/10. A notable feature of this database is that all of these surveys have occurred since the second wave of economic liberalisation.

Poverty has always occupied a prominent place in the economic development agenda of successive governments in Sri Lanka since independence. This is evidenced by the fact that Sri Lanka had achieved the MDG Goal 1 by 2010 despite the difficulties caused by the long-lasting ethnic conflict between the Tamil minority and Sinhalese majority. However, the economic benefits of development have not been evenly distributed over the whole country. Regional disparities are large and have been a key concern, as illustrated in Table 3-1. As the Head Count Index (HCI) in each district shows, the Colombo and Gampaha Districts are less poor than other areas. Consequently, more poverty can be seen outside the Colombo District; also, from a national point of view, urban poverty in Sri Lanka is comparatively less than rural poverty. Poverty has declined tremendously in districts such as Nuwara Eliya,

Hambantota, Anuradhapura and Polonnaruwa (Table 3-1 and Figure 3.1), yet, out of the total poor (1,806,000 people) in Sri Lanka, 84.7 per cent are located in the rural sector. (DCS, 2011). For this reason, a detailed poverty analysis is necessary: (1) to have a clear understanding of the fundamental causes of poverty; (2) to observe which factors contribute more to poverty changes in each sector separately, and; (3) for developing an effective strategy for combating poverty in Sri Lanka.

Table 3-1 Regional Poverty trends in Sri Lanka: HCI and Number of poor** 1990-2010

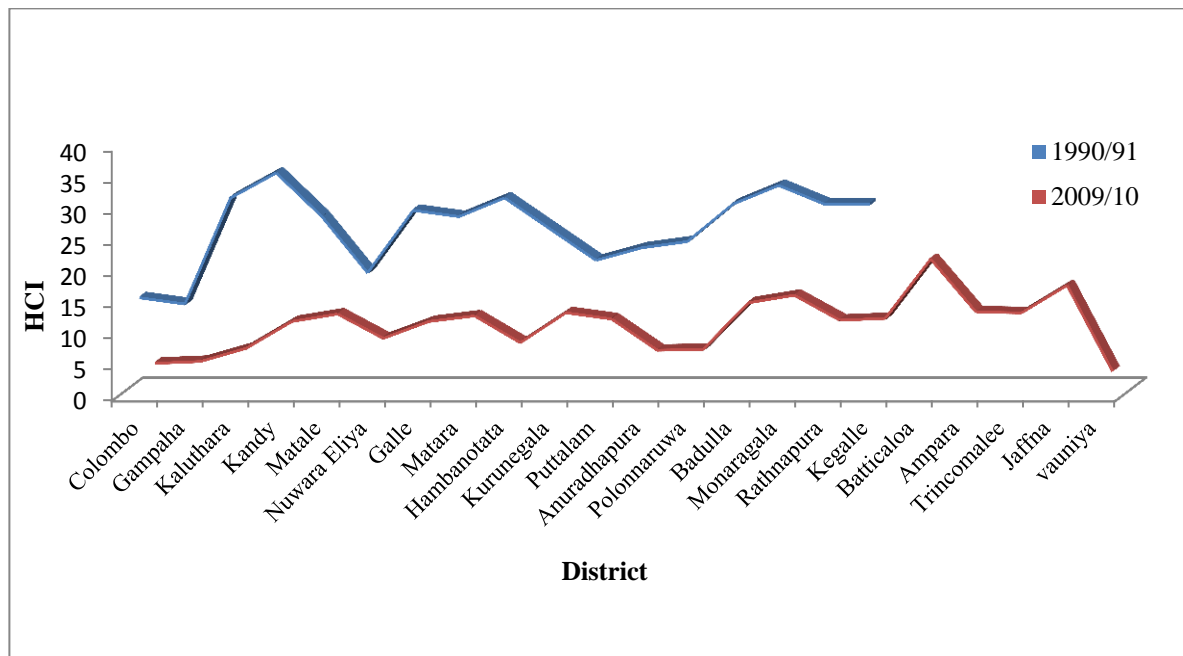
Province	Districts	1990/91	1995/96	2002	2006/7	2009/10
Western	Colombo	16	12	6	144,000	5.4
	Gampaha	15	14	11	218,000	8.7
	Kaluthara	32	30	20	180,000	13.0
Central	Kandy	36	37	25	282,000	17.0
	Matale	29	42	30	98,000	18.9
	Nuwara Eliya	20	32	23	168,000	33.8
Southern	Galle	30	32	26	221,000	13.7
	Matara	29	35	28	176,000	14.7
	Hambanotata	32	31	32	162,000	12.7
North Western	Kurunegala	27	26	25	305,000	15.4
	Puttalam	22	31	31	167,000	13.1
North Central	Anuradhapura	24	27	20	142,000	14.9
	Polonnaruwa	25	20	24	58,000	12.7
Uva	Badulla	31	41	37	242,000	23.7
	Monaragala	34	56	37	115,000	33.2
Sabaragamuwa	Rathnapura	31	46	34	305,000	26.6
	Kegalle	31	36	33	224,000	21.1
Easrtern	Batticaloa				10.7	36,000
	Ampara				10.9	64,000
	Trincomalee					11.7
Northern	Jaffna					16.1
	vauniya					2.3
Sri Lanka		26.1	28.8	22.7	3,207,000	15.2

Source: Department of Census and Statistics, Sri Lanka.

Note: The 1990/91 and 1995/96 survey years indicate only the Head Count Index. The other survey years indicate HCI in the first column and the number of poor in the second column. The surveys before 2010 exclude the North and East due to civil war. (Therefore no data is calculated for those regions.)

** Number of poor was not recorded in 1990/91 and 1995/6 due to lack of district-level data.

Figure 3-1 : District level poverty trends in Sri Lanka: 1990-2010



Source: *Department of Census and Statistics, Sri Lanka.*

3.2 *Poverty definitions, theories and empirical literature*

3.2.1 **Poverty definitions and measures**

This section focuses on briefly reviewing the various definitions and measures within the poverty literature. Adam Smith, the father of modern economics (1776) defined poverty as “the inability to purchase necessities required by nature or custom” (MacInnes, Aldridge, Bushe, Kenway, & Tinson, 2013, p. 7) over 200 years ago, showing that poverty is not just a problem of having access to the basic necessities of life, but also a social handicap. In this sense, poverty can be defined as “being able to follow the customs of a given society”²⁴. Although standard economic definitions of poverty in terms of income and consumption date back to the seminal work of Booth

²⁴ See <http://www.poverties.org/what-is-poverty.html>

(1892) and Rowntree (1901) in Victorian England (Baulch, 2006, p. 82), “Poverty – differently defined and measured – still remains one the crucial parts of the world development debate” (Lechman, 2013, p. 2). For example, MacInnes et al. (2013) defined poverty as the situation where “a person’s resources (mainly material resources) are not sufficient to meet minimum needs (including social participation).” The World Bank emphasised more specific conditions in one of its definitions, including “malnutrition”, “illiteracy”, and “disease” while also mentioning “human decency” (Coudouel, Hentschel, & Wodon, 2002; MacInnes et al., 2013) . Thus, a basic problem confronting all those who are involved in measuring and monitoring poverty is that it is necessary to define the concept of poverty in order to effectively analyse economic causes and propose potential solutions to the problem of poverty. All this must be done before attempting to measure poverty in any country or a region.

Although, commonly, poverty is perceived through the lens of low incomes which hinder people’s ability to acquire a “decent” life²⁵, poverty definitions have been examined in a broad way in academic and policy discourse on international development since the 1990s (Conway, 2004; Davis & Sanchez-Martinez, 2014) as there are substantial limitations to using a ‘money metric’²⁶ poverty definition to explain the magnitude of poverty. Poverty definitions should be focused on aspects such as social exclusion, material deprivation, lack of capabilities, limited possibilities and horizons in education and work. Then, the problem can be better

²⁵ According to the standard international poverty measures, the level of per capita daily consumption or income per person to support a decent standard of living is considered.

²⁶ Money-metric poverty definition is based on the income and expenditure of a household. In contrast, national poverty calculations consider monthly per capita expenditure or income of the household.

understood by defining it broadly including both economic (money-metric) and non-economic factors (Lechman, 2013). However, the definition can be made in both absolute and relative terms. Mostly, developing countries use absolute poverty lines while developed countries use relative poverty lines (Conway, 2004, p. 4; Davis & Sanchez-Martinez, 2014, p. 6). Absolute poverty compares household income or expenditure with the cost of a basket of goods and services. Further, the number of people below a certain income threshold or unable to afford certain basic goods and services are also taken into consideration. Absolute poverty is a state in which one's very survival is threatened by lack of resources. Relative poverty measures compare the household income and spending patterns of groups or individuals with the income and spending patterns of the general population and notes where their household's income falls below an average income threshold for the economy. However, Amartya Sen criticised both views, indicating that both suffer from a number of shortcomings and presented his definition as “absolute deprivation in terms of a person's capabilities relates to relative deprivation in terms of commodities, incomes and resources” (Sen, 1983, p. 153).

Many methods of poverty measurement have been proposed (Atkinson, 1987; Foster, Greer, & Thorbecke, 1984b; Kapteyan, Kooreman, & Willemse, 1988; Lechman, 2013; Sen, 1976). Although researchers have proposed and studied many alternatives for poverty measures (Appendix 2) since Sen's seminal work (Sen, 1976), the poverty headcount index is still considered as the most convenient poverty analysis tool even today. The most common poverty measurement is based on a comparison of resources to needs. A person or family is identified as poor if its resources fall short

of the poverty threshold. The data on families are then aggregated to obtain an overall view of poverty (Foster, 1998, p. 335). Foster further indicated that there are several ways in which relative measures and absolute measures enter into poverty measurement, noting that

“The first and perhaps, most important sense in which poverty measurement is absolute or relative concerns the setting of the poverty standard. An absolute poverty line is a fixed cut-off line that is applied across all potential resource distributions. In contrast a relative approach uses current data to generate the current poverty threshold. A relative poverty begins with some notation of a standard of living for the distribution such as mean, median, or some other quantile, and defines the cut-off as some percentage of this standard.”

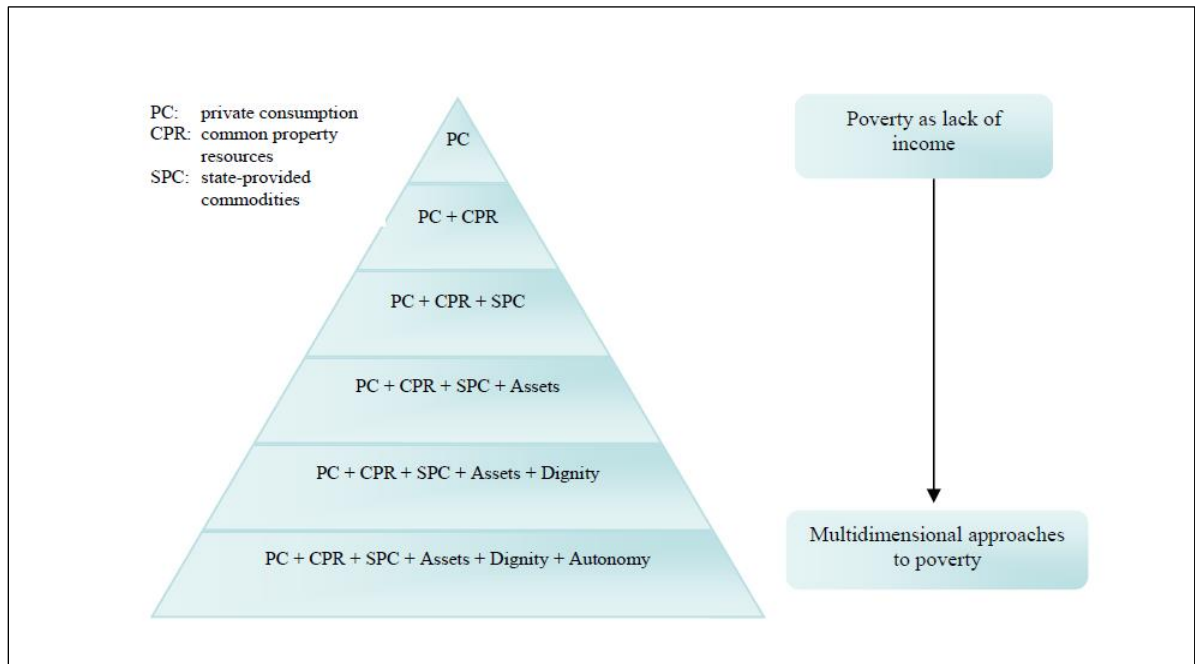
(Foster, 1998, p. 336)

Thus, poverty can be simply identified as a lack of day-to-day needs such as food, shelter, and medicine, which differ from one another. Poverty is also considered as relative deprivation (Valentine, 1968).

Poverty is now understood as a multidimensional problem and according to Baulch (2006) the poverty concepts that are discussed in the literature can be illustrated in a pyramid as in Figure 3-1. This suggests that poverty is not just measured through limited incomes and opportunities, but also through lack of education, lack of health facilities, unsanitary living conditions, exhaustion, exposure to disease, abuse and a host of other issues (Narayan, 2002). These multidimensional measures, which capture a set of direct deprivations that impact a person at the same time, provide an alternative lens through which poverty can be viewed and measured (Alkire & Foster, 2011; Alkire & Santos, 2010). Nevertheless, poverty studies (MacInnes et al., 2013)

still very often focus on income and expenditure poverty measures at individual or household levels. Thus, the most common “objective” definition of poverty is the annual income needed for a family/ individual to survive²⁷ (Bradshaw, 2006).

Figure 3-2 A pyramid of poverty concepts



Source: Baulch (2006, p. 82)

3.2.2 Poverty theories: contemporary literature

Due to the universality of the problem of poverty and different efforts to conceptualize and measure poverty while capturing different people as poor, theories of poverty present a general view and thus explain poverty in terms of fundamental social mechanisms which are unaffected by national, cultural, ethnic, racial or other

²⁷ See <http://repec.org/esAUSM04/up.26810.1088476172.pdf>

kinds of social differences (Elesh, 1970, p. 2). The literature on poverty records five theories on the origin of poverty as follows (Bradshow, 2006).

1 Individual deficiencies

This theory of poverty holds that the individual is responsible for their situation. Theoreticians argue that with harder work and better choices, the poor could have avoided their problems, but that most of the individuals in poverty have made very limited efforts to escape the vicious cycle of poverty. They also attribute poverty to lack of cognitive skills such as intelligence. “Ironically, neo-classical economics reinforces individualistic sources of poverty. The core premise of this dominant paradigm for the study of the conditions leading to poverty is that individuals seek to maximize their own well-being by making choices and investment and that they seek to maximize their well-being” (Bradshow, 2006, p. 6; Rank, 2004; Sameti, Esfahani, & Haghighi, 2012). This can be seen in the Sri Lankan context as well.

2 Cultural belief systems that support sub-cultures of poverty

This theory indicates that poverty is created by the transmission of a set of beliefs, values and skills over generations. Although this theory sometimes links with the individual deficiency theory of poverty or other poverty theories, it indicates that individuals are not necessarily to blame as they are victims of their dysfunctional sub-culture (Bradshow, 2006).

3 Political economy distortions

This theory does not hold the individual as the cause of poverty, but rather the economic, political and social system which causes people to have limited opportunities and resources with which to achieve income and well-being.

4 Geographical disparities

The spatial characteristics of poverty such as rural poverty, third-world poverty and ghetto poverty have led to the formation of a separate theory. This theory pays attention to the fact that people, institutions and cultures in a specific area lack the resources needed to generate well-being and income due to uneven resource distribution. Bradshaw (2006, p. 12) emphasized that propinquity and the conditions leading to poverty or the consequences of poverty such as crime and inadequate social services generate more poverty, while more competitive areas attract business clusters, drawing resources away from impoverished communities. There are many studies that address this special issue (Bigman & Fofack, 2000; Datt & Ravallion, 1990; Gachassin, Najman, & Raballand, 2010; Gibson & Rozelle, 2003; Gray & Moseley, 2005). Mostly, they have emphasized that there is a strong correlation between poverty and rural infrastructure, school attainments and access to roads (Gibson & Rozelle, 2003). Within the infrastructure category, roads are considered the most important in reducing poverty as they enhance the connectivity of isolated and remote areas (Gachassin et al., 2010). This characteristic of geographical disparity is the most prominent one reflected in the Sri Lankan context as well. Thus this theory is the most applicable to Sri Lanka's poverty situation.

5. Cumulative and cyclical interdependencies

In contrast to the above four theories which demonstrate the complexity of the sources of poverty, this theory of cumulative and cyclical interdependencies examines the individual and their community as caught in a spiral of opportunities and problems. “The cyclical explanation explicitly looks at individual situations and community resources as mutually dependent, with a faltering economy, for example creating individuals who lack resources to participate in the economy, which makes economic survival even harder for the community since people pay fewer taxes” (Bradshaw, 2006, p. 14). This theory can also explain the Sri Lankan situation. By examining individuals and their communities, it becomes easier to understand the specific poverty determinants in those communities as it is clear to see that how the cycle of poverty repeats at itself in the individual level.

3.2.3 Empirical studies on poverty determinants

Poverty measurement and analysis are needed to identify the poor, the nature and extent of poverty and its determinants, and to assess the impact of policies and welfare programs on the poor (Gunawardena, 2004). Considerable analytical efforts have been made within the last two decades in poverty-related studies directed toward driving good practices in measuring poverty in all its dimensions and generating the data required. Those studies primarily focused on the determinants of poverty, how changes in economic policies influence poverty and various other poverty measures

(Datt & Jolliffe D., 1999; Datt & Ravallion, 1992a; De Silva, 2008; Deaton, 1997; Mok, Gan, & Sanyal, 2007; World Bank, 2005).

Most of the poverty studies were based on multivariate regression analysis to identify the determinants of poverty at the household level, using reduced form models of various structural relationships (Glewwe, 1991). The literature indicates that regardless of the definition of the poverty line, the most commonly used dependent variables in poverty functions are dichotomous in nature or measures of the poverty gap. However, there is debate over the usefulness of poverty probit versus an OLS on consumption (Coudouel et al., 2002; Pradhan & Ravallion, 2000; Ravallian, 1996; Ravallion & Wodon, 1999; Wodon et al., 2001; World Bank, 2005). It is argued that taking the dependent variable as a binary variable will lose a lot of information about the dependent variable and make the estimates of logit or probit regressions relatively sensitive to specification errors. However, there are some appropriate uses of probit or logit regressions (Coudouel et al., 2002, p. 45). Firstly, probit and logit regressions can be used to assess the predictive power of various variables used for means testing for targeting analysis. Secondly, probit or logit regressions can be used to analyse the determinants of transient versus chronic poverty where panel data are available.

Although there is a rich literature on poverty focused on the measurement of poverty and related issues²⁸, there are very limited studies of poverty determinants in Sri Lanka (De Silva, 2008; Gunawardena, 2004). De Silva showed that education of the

²⁸ see www.ips.lk and www.cepa.lk for further details.

head of the household, or having a household head engaged in salaried employment or engaged in business, were the most significant positive poverty determinants for Sri Lanka for the year 2000. She further identified that the probability of being poor rises with household size, the household head being female, living in a rural area, and being a casual wage earner. These results were obtained by estimating a logistic regression for poverty determinants using data from the Sri Lanka Integrated Survey conducted by the World Bank in 2000.

A recent study (World Bank, 2007) on poverty in Sri Lanka indicated that poverty is strongly associated with attributes of individuals/households such as educational attainment, employment status, and family size. Further, this report explains that larger households, especially those with children, are more likely to be poor whereas households with a member working abroad have a significantly lower likelihood of being poor. It has been found that after individual differences are accounted for; the likelihood of being poor also depends on a range of spatial factors, such as poor regional growth and employment opportunities, and the availability of infrastructure, such as roads and electricity.

Chandrasiri and Samarakoon (2008) have explored the relationship between spatial patterns of poverty and its geographic determinants. They used spatial autocorrelation analysis and geographic determinants of poverty described by a global spatial error regression model. However, till now there has been no useful attempt to identify the changes in poverty determinants over time and across economic sectors in Sri Lanka; the present study attempts to fill this gap.

3.3 *Poverty trends in Sri Lanka*

Sri Lanka is an island nation-state in the Indian Ocean with a land area of 6.55 million hectares and a middle-income developing economy with a GDP per capita of US\$2923 and GNP per capita of US\$2866 in 2012 (Central Bank of Sri Lanka, 2012). Since the majority of the poor in Sri Lanka live in the rural sector, agriculture remains the main source of income for them. Latest statistics in Sri Lanka indicate that the rural population in Sri Lanka accounts for 16.3 million (72 per cent) of the total population of 20.3 million: 84 per cent of the total poor are reported to be from the rural sector (DCS, 2011). Sri Lanka is an interesting case study to add to the existing literature as it was the first country in South Asia to liberalize trade, 30 years ago. Although successive governments have given top priority to welfare programs while improving other aspects of the economy over time, poverty and inequality²⁹ have remained the main problems. Some of the main welfare programs³⁰ implemented in Sri Lanka are the 'Rice Ration Scheme', 'Food Stamp Scheme' 'Janasaviya' programme (introduced in 1989) and 'Samurdhi' programme (introduced in 1994). In addition to these, a number of other welfare schemes have been implemented from time to time, specially aimed at reducing malnutrition among school children (Nanayakkara, 2006).

Reducing poverty is a difficult and complex challenge for any developing country like Sri Lanka. However, welfare programs have always occupied a prominent

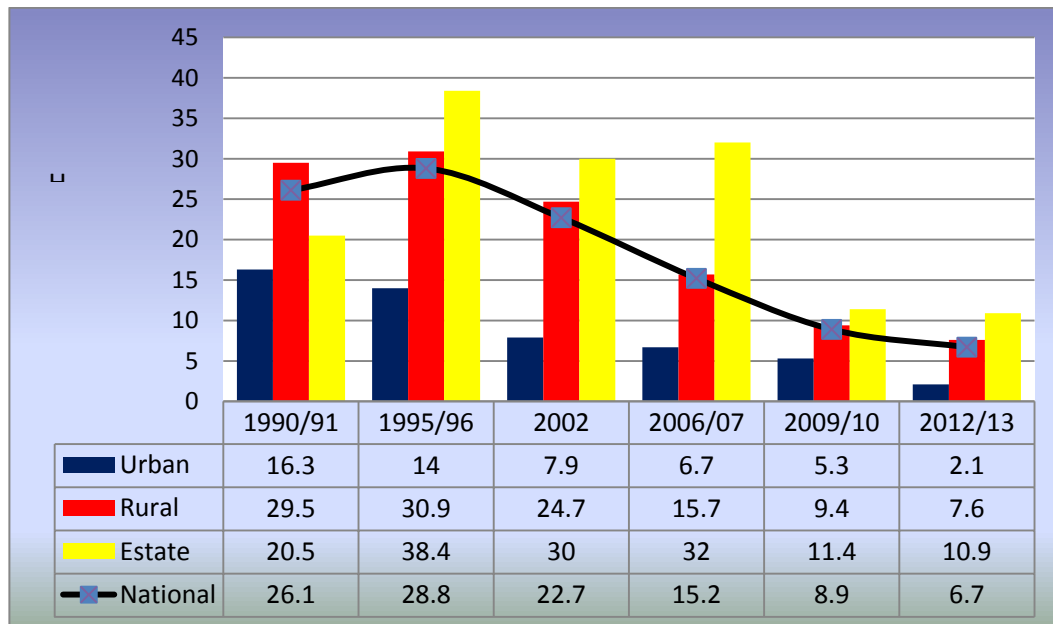
²⁹ As an example Sri Lanka reduced unemployment to 5.8 per cent by 2009 (Central Bank of Sri Lanka, 2009).

³⁰ All these programs are explained in Chapter Six of the thesis.

position as a source of providing basic human needs such as food security and employment, access to health facilities and basic education. This has resulted in significant achievements in some areas of human welfare relative to other developing countries (Amarasinghe, 2005).

The latest Household Income and Expenditure Survey (2009/10) indicates that the poverty headcount ratio has dropped tremendously to the single digit level; 8.9 per cent (Figure 3-3). As Figure 3-3 demonstrates, poverty has declined over time in Sri Lanka, in terms of the proportion of the population who are below the poverty line. Although the heterogeneity of poverty levels in Sri Lanka had differed widely between sectors since 1990/91, it had been reduced significantly by 2013 (DCS, 2011, 2015).

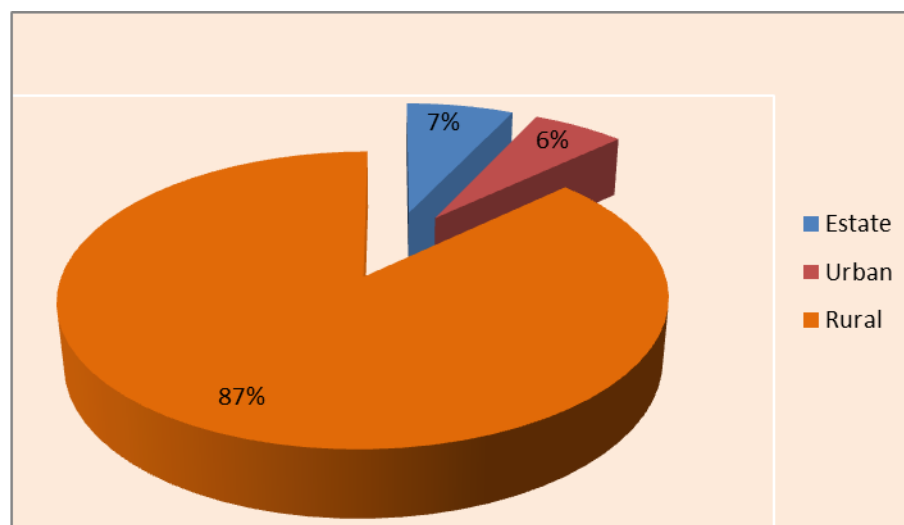
Figure 3-3: Poverty trends in Sri Lanka, 1990 to 2013



Source: Department of Census and Statistics, Sri Lanka,
Various HIES reports 1990-2013

The fact that nearly 87 per cent (Figure 3-4) of the total poor belong to the rural sector indicates that rural poverty in Sri Lanka is alarming. The sectoral imbalances in economic development enlarge the gaps between rich and poor while creating poverty groups within the rural sector. Figure 3-4 shows that the majority of the districts are below the average monthly expenditure level. Nearly 71 per cent of the country's population lives outside the Western Province,³¹ which has been the fastest growing province in Sri Lanka in the last two decades and shows significant differences from all other provinces in terms of per capita income levels, growth rates of per capita income, poverty rates, and the structure of the provincial economies.

Figure 3-4: Contribution to total poverty by sector in Sri Lanka in 2013



Source: Department of Census and Statistics, Sri Lanka,
Various HIES reports 2009/10

³¹ Western Province includes Colombo, Gampaha and Kalutara districts. See the following website for further details regarding regional disparities.
http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2009/07/30/000334955_20090730025348/Rendered/PDF/489680ESW0LK0P1C0disclosed071281091.pdf , access date October 24th 2013.

These regional disparities led to uneven development of the provinces and uneven poverty rates. Comparatively, all other provinces indicate substantially higher poverty incidence while the Western Province has always indicated the lowest poverty incidence. Table 3-2 shows the spatial distribution of poverty in Sri Lanka due to these regional disparities.

Table 3-2: Poverty status among households in Sri Lanka: 1990 – 2010

Yea/Poverty Index	1990/91				2009/10			
	PHC	PGI	SPGI	Welfare-gap*	PHC	PGI	SPGI	Welfare-gap*
National	26.1	5.6	1.8	3.11	8.9	1.7	0.5	3.4
Urban	16.3	3.7	1.3	2.85	5.3	1.2	0.4	3
Rural	29.4	6.3	2.0	3.15	9.4	1.8	0.5	3.6
Estate	20.5	3.3	0.9	3.67	11.4	2.1	0.6	3.5

Source: Department of Census and Statistics, Sri Lanka.

* Welfare gap is explained by the PGI/SPGI

Note: PHC Poverty headcount index poverty incidence, (absolute poverty) is the proportion of people below the poverty line.

PGI Poverty gap Index - Poverty depth (Extreme poverty)/ Poverty intensity is the average shortfall of the income of the poor with respect to the poverty line, averaged over the whole population. Of the 15.2% of the population living in poverty, 3.1% of the respondents are living in extreme poverty.

SPGI Square poverty gap index - poverty severity. Address inequality among the poor.

Both Figure 3-3 and Table 3-4 show how poverty has changed at the national and sectoral levels in Sri Lanka within the last two decades. Poverty headcount, poverty gap and squared poverty gap have been reduced tremendously during the last two decades, with the headcount poverty rate falling from 26.1% in 1990/91 to just 8.9%

of the population living in poverty in 2010. However, rural and estate sectors were above the national average while only the urban sector was below the national average of poverty measures in 2010. Nonetheless, the welfare gap index shows that urban and rural poverty has reduced significantly over the past two decades.

Sri Lanka has already achieved the first Millennium Development Goal of reducing national poverty, and reducing sectoral poverty by 50 per cent, except in the estate sector³². The poverty headcount ratio has been reduced tremendously in each district within the last twenty years (Table 3-1). However, significant regional disparities remain within districts and provinces. Although only the percentage measures for poverty analysis are often considered, the number of poor people is also important in planning effective poverty reduction programmes in each district.

3.4 *Methodology*

In this Chapter, probability regression models are employed to estimate the key determinants of national and sectoral poverty in Sri Lanka. In addition these regressions are used to examine the behaviour of the poverty determinants within the expenditure deciles over time. In the last part of the chapter, poverty is decomposed into growth and redistribution factors using POVCAL software to examine the role of inequality changes over the last two decades.

³² For more information please see “Sri Lanka a trend setter in the Millennium Development Goals (MDGs Fri,2013-07-05)” in <http://www.asiantribune.com/node/63028>

3.4.1 Data sources

This study uses disaggregated data from four comparable Household Income and Expenditure Surveys (HIES) carried out by the Department of Census and Statistics (DCS) Sri Lanka in 1990/91, 1995/96, 2006/07 and 2009/10. DCS Sri Lanka conducted HIES once every five years until 2006/07 and then, once every three years from 2009/10 onward, mainly covering demographic factors, health and education, food and non-food expenditure, and household income from different sources including transfers. The latest HIES in Sri Lanka was conducted in 2009/10 and covered the entire country for the first time³³.

Data collection for these surveys was done in 12 equal monthly rounds to capture seasonal variations in income and expenditure. Two-stage stratified random sample design was used, with urban, rural, and estate sectors as the domains for stratification. The sample frame was the list of buildings that were prepared for the Census of Population and Housing 2001. The primary sampling unit was a census block, and the secondary sampling unit was a housing unit within the selected census block³⁴. In my analysis of the data I have employed national household survey data while omitting some observations due to insufficient data³⁵. Sample allocations (for 12 months) of the selected HIES are as follows (Table 3-3).

³³ HIES was conducted excluding the North and East for the previous surveys due to the civil conflict but just after the war it began to cover the entire country. However, we have adjusted the data for comparability and have explained the procedure in the relevant chapters.

³⁴ See www.statistics.govt.lk for further details

³⁵ More details regarding data omission are included in Chapter Five.

Table 3-3: Sample allocation: Household Income and Expenditure Surveys: 1990-2010

HIES year	National	Urban	Rural	Estate
1990/91	19,401	6,664	11,469	1,268
1995/96	21,220	-	-	-
2006/07	21,790	5,800	13,930	2,060
2010	19,958	5,273	12,949	1,736

Source: Department of Census and Statistics, Sri Lanka

3.4.2 Analytical framework

3.4.2.1 Probit regression analysis

Since the aim of this study was to identify the factors which determine the probability of a household being poor in Sri Lanka, the response variable was considered as a binary variable. A probability model was one of the appropriate regression techniques for this analysis due to the discrete dichotomous nature of the dependent variable which examines the poverty status of the household (Wodon, 1997). Although some arguments indicate that taking a dependent variable as a binary variable will lose some information and that the resulting logit or probit regression is relatively sensitive to specification errors, Spector and Mazzeo (1980) pointed out that probit analysis proves a better predictor than OLS when the dependent variable is dichotomous. They further mentioned that the non-linearity of the probit model also has intuitive appeal because it allows for some interaction among independent variables. The purpose of OLS is to estimate a linear relationship between a set of independent and dependent variables (World Bank, 2005).

A probit regression model is employed for this analysis as logit and probit models produce quite similar results³⁶ (Amemiya, 1981). The only difference between the two methods is the probability distribution functions that they use: while logit includes the logistic probability distribution function, probit includes the cumulative normal probability distribution function. Thus, either logit or probit regression analysis can be used for this type of analysis where the dependent variable is dichotomous. Although HIES data provides continuous data for household expenditure, poverty needed to be viewed as a discrete choice because the main purpose of this analysis was to examine poverty determinants in Sri Lanka. Therefore, I chose to use zero and one to identify whether the household was poor or not, and chose probit analysis, which is one of the appropriate models to use on dichotomous dependent variables.

In the probit regression, the household is considered as poor if the per capita expenditure per head per month is below the estimated official/national poverty line³⁷ (Table 3-4). The official poverty line is established based on the estimated amount of monetary value that is required to meet the basic needs of the household for a month. If the household is poor, it takes the value 1, otherwise zero. Thus, the predicted values of the dependent variable lie between zero and one. Therefore, the predicted values are interpreted as probabilities.

³⁶ Amemiya (1981, p1487) suggested that ‘in the univariate dichotomous model, it does not matter much whether one uses a probit or logit model, except in cases where data are heavily concentrated in the tails...’

³⁷ The official poverty line for Sri Lanka (national and sub-national levels) was first constructed in 2002 by the Department of Census and Statistics and is updated every year (Nanayakkara, 2006).

The functional form of the probit model is as follows:

$$Y_i^* = X_i\beta + \varepsilon_i \dots\dots\dots(1)$$

where Y_i^* is the latent variable which indicates the propensity to have $Y=1$ (i.e. for the household to be below the poverty line), X_i is a matrix of explanatory variables ($K \times 1$ regressor vector; K is the number of parameters), β is a vector of parameters to be estimated and ε_i is the error term (residuals) which is assumed to be normally distributed. A binary variable can be defined as:

$$s_i = 1 \text{ if } Y_i < z,$$

$$s_i = 0 \text{ otherwise}$$

z is the national poverty line. The binary model then becomes:

$$\text{Prob}(s_i=1) = F(z - \beta X_i) \dots\dots\dots(2)$$

F is the cumulative normal probability function.

Most of the categorical independent variables such as employment of the household head, ethnicity of the head of the household and location of the household were fitted to the regression model by converting to dummy variables.

3.4.2.2 Model specification

The probability of observing a household falling below the poverty line is defined in terms of a single unobserved index, and the standard cumulative normal distribution is used to transform the index into the probability value. The poverty estimates are based on monthly per capita consumption expenditure (PCEXP) as a measure of

household welfare³⁸. This analysis employed probit models using national poverty lines (Table 3-4) with respect to each survey year.

Table 3-4 : Official Poverty lines³⁹ for Sri Lanka

1990/91	1995/96	2006/7	2009/10
475	833	2233	3028

Source: Department of Census and Statistics, Sri Lanka

3.4.2.3 Dependent variable

An appraisal of the literature shows that most studies have used household income or expenditure as a welfare indicator, which is compared to the poverty line to identify poor households. The present study uses household consumption expenditure to form the dependent variable, because income data in many countries is believed to be less reliable than consumption data in household surveys (Deaton, 1997). Since income is often under-reported and there are difficulties in quantifying some incomes (e.g. self-employment and capital income), income data is expected to be less reliable. Also there is a time factor that has an influence on recorded income due to seasonality; this is likely to have less effect on expenditures. Hence, consumption is often regarded as a better indicator of poverty calculations. Household per capita expenditure per month was used as the poverty measurement variable, adjusted for household size

³⁸ The PCE figures were calculated by dividing total monthly household expenditure by the corresponding household sizes. They include imputed values for consumption of food and nonfood items.

³⁹ The poverty line is real total food and non-food consumption expenditure per person per month.

(number of household members). This was calculated considering both food and non-food expenditure, including in-kind transactions for the household.

3.4.2.4 Explanatory variables

The explanatory variables included in this study are the demographic and socio-economic variables of the household, the location of the household (urban, rural, estate), human capital variables and other attributes of the households. Some of these variables are included as continuous variables and some are dummy variables. The key causes of poverty and correlates of poverty usually include regional level characteristics, community level characteristics, household level and individual characteristics.

Demographic and socio-economic variables were captured using the age and employment status of the head of the household. The latter was explained using three dummy variables: employment in the government sector; private sector; or self-employed based on the available data. Further, agricultural and non-agricultural sectors were added as dummy variables in the employment sector. The gender of the household head was determined by applying the value 1 if the household head was female and 0 otherwise. Although there is debate concerning the sign expected for this variable, most of the literature assigns a negative sign for a male head of the household. This means male-headed households are less likely to be poor while female-headed households are more likely to be poor (Mok et al., 2007). Ethnicity

was also considered as a dummy variable. If the head of the household belonged to a non-Sinhalese group, the value assigned was 1, and otherwise zero (Table 3-5).

Table 3-5: Explanatory variables

Variable	Description
Household Head:	
Age	Number of years
Employed in government sector	Dummy if head engaged government job=1
Employed in private sector	Dummy if head engaged private sector job=1
Self-employed	Dummy if head engaged in self-employment =1
Engaged in non-agricultural job	Dummy if head engaged in non-agriculture job=1
Education	Number of years of schooling
Ethnicity (non-Sinhalese=1)	1 if head is non-Sinhalese
Household Demography :	
Spouse employed	1 if spouse employed
Female-headed household	1 if household head is female
Average education of other members	Average number of schooling years of the members of the household except head and those who are still in school
Household size	Number of household members living in the household
Female adult ratio	Number of females over age 15, divided by total household size
Dependency ratio	number of children below the age of 15 and elderly above 60
Remittances:	
Local Remittance	1 if household receives local remittances
Foreign Remittance	1 if household receives foreign remittances
Region:	
Rural	1 if household is located in rural sector
Estate	1 if household is located in estate sector
Urban	1 if household is located in urban sector

Source: Compiled by the author

The variable ‘age of the head of the household’ captured work experience. The expected sign here was negative, because the greater the age, the higher the level of work experience and thus the higher the age, the higher the earnings. Further, both the dependency ratio variable, which includes the number of children under the age of 15

and elderly people above the age of 60 in the household, and the household size variable, were included in the model.

The human capital variable captured the education of the members of the household and the head of the household. The education of the head of the household and the average years of schooling of the other members of the household are included as two variables. It is assumed that a year of education is of equal value regardless of the school, the curriculum and the time period when schooling took place. Education is considered a significant determinant of household welfare in most of the studies in Sri Lanka as well as in other similar developing nations (De Silva, 2008; Glewwe, 1991; Mok et al., 2007). As higher education qualifications provide better opportunities for earnings, the expected sign for the variable is negative.

Foreign and local remittances were included as explanatory variables in this study and the expected signs were negative. Sectoral dummies have been included for urban, rural and estate sectors to capture regional disparities.

3.4.2.5 Quantile regression analysis and ordinary least square (OLS) analysis.

Quantile regression (QR) analysis examines the correlation between real expenditure per capita (natural log) and poverty determinants (explanatory variables) in urban, rural and estate sectors in Sri Lanka at the mean and various other expenditure quantiles. Compared to the OLS regression, quantile regression has two attractive

features (Cameron & Trivedi, 2010). First, quantile regression is more robust than OLS regression, as OLS is sensitive to the presence of outliers, and thus can be inefficient when the dependent variable takes a highly non-normal distribution. Second, the correlation of poverty determinants with relative poverty (items of the various quantiles of expenditure) can be examined along the welfare distribution through QR. Therefore, it provides a richer analysis of data than OLS.

As the dependent variable for the QR is monthly real per capita expenditure as a natural log, the estimated values for the independent variables in each quantile show the percentage change in monthly expenditure per capita with respect to a unit change in factors associated with household poverty in Sri Lanka.

Although household expenditure is a continuous variable, we examined the poverty status of the households as the poverty determinant. Therefore we used the poverty status of the household; poor/not-poor as a binary variable. To examine poverty status we used the poverty line to derive the dichotomous dependent variable in the model. Thus, we used the probit model to examine how poverty determinants impacted on changes in the probability of a household being poor over the past two decades in Sri Lanka. In addition, we used a linear probability model estimated by OLS to compare the averages between per capita expenditure and poverty determinants, using an identical set of independent variables.

3.5 *Results and discussion:*

3.5.1 Determinants of household poverty in Sri Lanka: 1990-2010

The above-mentioned variables (Table 3-5) were fitted into probit regression models to examine the poverty determinants of the past two decades. The advantage of this approach is that due to the discrete dichotomous nature of the dependant variable, the coefficients examine the probability of poverty status in a household as the right-hand side variables change. Table 3-4 demonstrates the results of the probit regression (marginal effect) for poverty determinants, and their changes in Sri Lanka from 1990 to 2010. Almost all the independent variables are statistically significant in the models and are economically meaningful.

Theoretically, the educational attainment of the head of the household and of other household members is strongly associated with poverty. The results of the probit regression analysis established an inverse relationship which indicated that when the education level (number of years of schooling) of the head of the household increases, the likelihood of the household being poor is decreased. Similarly, increases in the education level of the other members of the household reduce poverty in that particular household, *ceteris paribus*. The results indicate that additional years of education of the head of the household and of the other members of the household had a greater impact on poverty reduction in the early survey periods than in the 2010 survey. Previous research in Sri Lanka has also shown that a household is significantly less likely to be poor when the head of the household has more than 12

years of school education (World Bank, 2007)⁴⁰. Himaz and Aturupane (2011) noted a distinct jump in household poverty reduction for an extra year of education at the levels where national exams are completed. Research in other countries also shows that education of the head of the household is negatively correlated with poverty (Datt & Jolliffe D., 1999; Mok et al., 2007). Therefore, it can be concluded that education variables are significant in the model and that education helps to reduce the likelihood of being poor, indicating that education is a strong poverty determinant in Sri Lanka.

The local remittance variable was insignificant only in 1990/91 and the spouse employed variable was insignificant only in 2009/10. However, structural beta changes can be seen clearly over the years for both positive and negative correlates. Also, changes in the direction of impact of the determinants (sign of the variables) can be examined over the years. Among all these poverty determinants, foreign remittance has been the most influential factor for reducing poverty in Sri Lanka within the last two decades, although the magnitude of this factor has declined over the years.

Similarly, the age of the head of the household, the educational level of the head of the household, the household head being employed in a public sector job, employed in the non-agriculture sector, the spouse being employed, the female adult ratio of the household and the availability of local remittances also negatively correlate with household poverty in Sri Lanka. In contrast, the dependency ratio, the indicator for

⁴⁰ This study has used 2002 HIES data for the calculations

female-headed households, the household head being employed in the private sector or self-employed, and household size are the factors which are positively correlated with household poverty in Sri Lanka over the last two decades. Considering geographical variables, both rural and estate sector households are more likely to be poor in Sri Lanka relative to the urban sector households. Compared to the urban sector households, estate households were less likely to be poor and rural households were more likely to be poor in 1990. Both rural and estate sector households were more likely to be poor in 1995 and 2006. However, in 2010, compared to the estate sector, urban and rural households are less likely to be poor (Table 3.6). These geographical differences come from the regional disparities in terms of economic as well as social factors in Sri Lanka and thus, the location of the household partially determines poverty. Estimates from the model demonstrate that female-headed households are more likely to be poor in Sri Lanka, *ceteris paribus*, though this impact on poverty is diminishing over time. Most studies on poverty determinants (Datt & Jolliffe D., 1999; De Silva, 2008; Dudek, 2006) have shown that female-headed households are more likely to be poor than male-headed households are. De Silva (2008) indicated that the age of the head of the household has negligible positive effect on the household being poor, while the probit estimates indicate a very small negative relationship between the age of the household head and household poverty for all years, as expected. The age of the head of the household is statistically significant, though it is not a strong poverty determinant in Sri Lanka.

Interestingly, results indicate that non-Sinhalese households were less likely to be poor compared to the Sinhalese majority in Sri Lanka until 2006/7. However, the

situation has changed over time and non-Sinhalese were more likely to be poor by 2009/10 (Table 3-6). One of the possible reasons for this change is the inclusion of the North and East provinces, where the majority of the non-Sinhalese population is located, in the HIES for the first time in 2009/10⁴¹. The sample selection procedure and survey periods have been comparable in each Household Income and Expenditure Survey from 1990 to 2010. The limitation of the HIES data in 1990/91, 1995/6, 2006/7 was that they did not achieve national coverage. HIES in 1990/91 excluded 8 districts including Jaffna, Vauniya, Batticaloa, Ampara, Trincomalee, Mannar, Killinochchi and Mullathivu in the North and East due to the conditions surrounding the ethnic conflict. Although the 2009/10 HIES survey covered the entire country in the collection process, it excluded three districts; Mannar, Killinochchi and Mullathivu in Northern Province due to massive mine clearance and resettlement activities. Therefore, for comparability of the data we removed the five districts: Jaffna, Vauniya, Batticaloa, Ampara, Trincomalee, which were excluded in the earlier surveys, to explore the robustness of the 2010 results using the same spatial coverage and for overall comparability. However, the significant changes of the structural beta of the covariates or the changes of the magnitudes were not examined in the results.⁴²

As the literature shows, the higher the number of children, and the higher the number of children who are of school age in the family, the more negative is the effect on poverty (Dudek, 2006; Lanjouw & Ravallian, 1995). All children under 15 who are

⁴¹ Due to the civil conflict went on in Sri Lanka for years HIES were conducted excluding North and East provinces.

⁴² See the results in Appendix 3 (summary statistics are in Appendix 2)

in school and all people over the age of 60 years are included in the dependency ratio variable. The estimated coefficients show a positive relationship between the dependency ratio and the probability of a household being poor. Therefore, it can be concluded that a higher dependency ratio leads to higher household poverty in Sri Lanka.

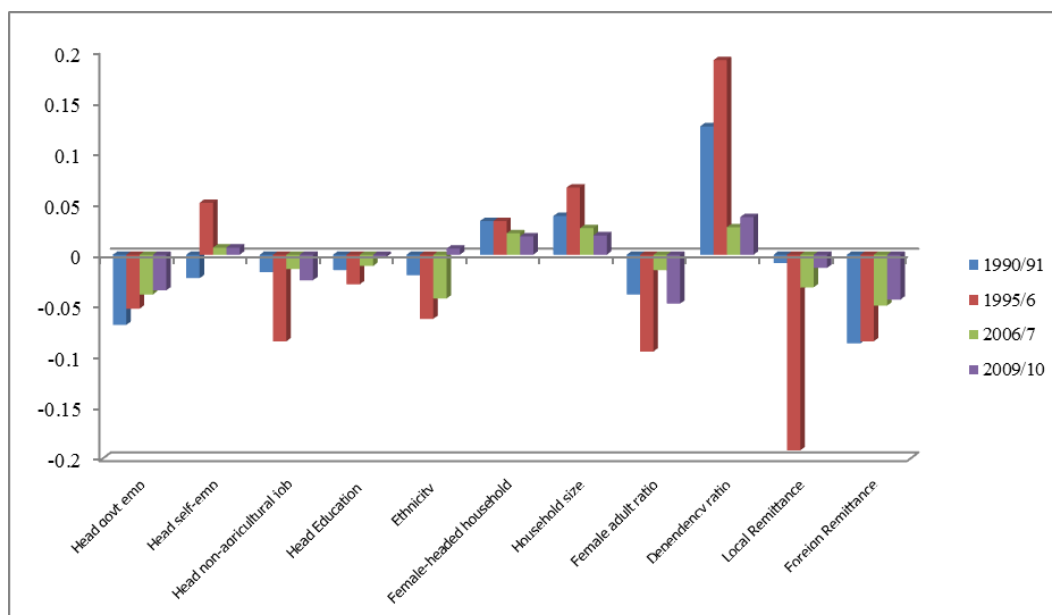
In conclusion, the covariates of educational attainment of the household head and other members of the household, receipt of foreign and local remittances, higher female adult ratio, and the household head being employed in a government job are the significant positive factors that have reduced poverty in Sri Lanka within the last two decades. Although the magnitude of the covariates has declined over the years, the magnitudes of the covariates of female adult ratio and receipt of local remittances increased over the period 1990–2010. The factors of larger household size, female-headed households and the household head being employed in private jobs or self-employed contribute to increased poverty in Sri Lanka.

3.5.2 Changes of poverty determinants by sector: 1990-2010

The risks of households being poor can be examined in terms of where they are located. Households located outside the Western Province, mainly away from Colombo District, are more likely to be poor. Therefore, spatial characteristics at the sectoral and district levels emerge as strong correlates of poverty. In the following section, changes in sectoral poverty determinants are examined over the urban, rural and estate sectors in Sri Lanka from 1990 to 2010. Specifically, Table 3-6 and figure

3-5 depict the probit estimates (marginal effects) of poverty determinants. There are no significant changes in the signs of the poverty determinants over the sectors over time except for a limited number of determinants, such as whether the head belongs to a non-Sinhalese ethnic group in the rural and the estate sectors.

Figure 3-5: Changes in poverty determinants over time in Sri Lanka: 1990-2010



Source: Compiled by Author using probit marginal values

Non-Sinhalese households were less likely to be poor with respect to Sinhalese majorities in Sri Lanka over the years in the rural and estate sectors but this had totally changed by 2010. The likelihood of a non-Sinhalese household being poor also declined considerably in the urban sector. Significant changes can be observed in the magnitude of the determinants in each sector over time.

Table 3-6: The determinants of household poverty in Sri Lanka: 1990-2010
probit regression estimates (marginal effects)

Poverty determinants	1990/91	1995/6	2006/7	2009/10
Household Head:				
Age	-0.001 (14.00)**	-0.003 (21.15)**	-0.000 (2.50)*	-0.000 (1.99)*
Employed in government sector	-0.069 (12.99)**	-0.053 (5.82)**	-0.039 (7.91)**	-0.035 (10.05)**
Employed in private sector	0.085 (17.92)**	0.165 (29.51)**	0.041 (13.85)**	0.037 (13.93)**
Self-employed	-0.023 (6.11)**	0.051 (9.96)**	0.007 (2.31)*	0.007 (2.74)**
Engaged in non-agricultural job	-0.017 (4.85)**	-0.085 (18.57)**	-0.014 (5.90)**	-0.025 (12.42)**
Education (number of years)	-0.015 (35.89)**	-0.029 (50.42)**	-0.011 (36.78)**	-0.002 (8.16)**
Ethnicity (Non-Sinhalese=1)	-0.020 (4.92)**	-0.063 (10.62)**	-0.043 (17.09)**	0.006 (3.02)**
Household Demography :				
Spouse employed	-0.012 (3.80)**	-0.012 (2.80)**	0.008 (3.31)**	-0.002 (0.84)
Female-headed household	0.033 (4.23)**	0.033 (5.91)**	0.021 (7.10)**	0.018 (7.80)**
Average education of other members (No of years)	-0.024 (37.29)**	-0.041 (47.23)**	-0.017 (36.11)**	-0.006 (14.44)**
Household size	0.038 (60.10)**	0.066 (65.73)**	0.026 (49.13)**	0.019 (45.47)**
Female adult ratio	-0.039 (2.78)**	-0.095 (6.46)**	-0.015 (1.62)	-0.048 (6.85)**
Dependency ratio	0.126 (17.56)**	0.191 (17.20)**	0.027 (4.95)**	0.037 (7.69)**
Remittances:				
Local Remittance	-0.008 (0.96)	-0.192 (21.70)**	-0.032 (7.88)**	-0.013 (3.88)**
Foreign Remittance	-0.087 (13.44)**	-0.085 (8.54)**	-0.050 (12.32)**	-0.044 (16.15)**
Region:				
Rural	0.067 (20.75)**	0.235 (45.06)**	0.076 (28.98)**	-0.015 (4.89)**
Estate	-0.069 (9.98)**	0.155 (16.74)**	0.154 (26.25)**	
Urban				-0.051 (18.54)**
Observations	89967	88935	75822	79585

Source: Author calculations using HIES data, Sri Lanka.

Note: Dependent variable: expenditure per capita per month is used to form the dummy variable (poor =1). Robust z statistics in parentheses * significant at 5%; ** significant at 1%

3.5.3 Changes in poverty determinants in urban sector in Sri Lanka: 1990-2010

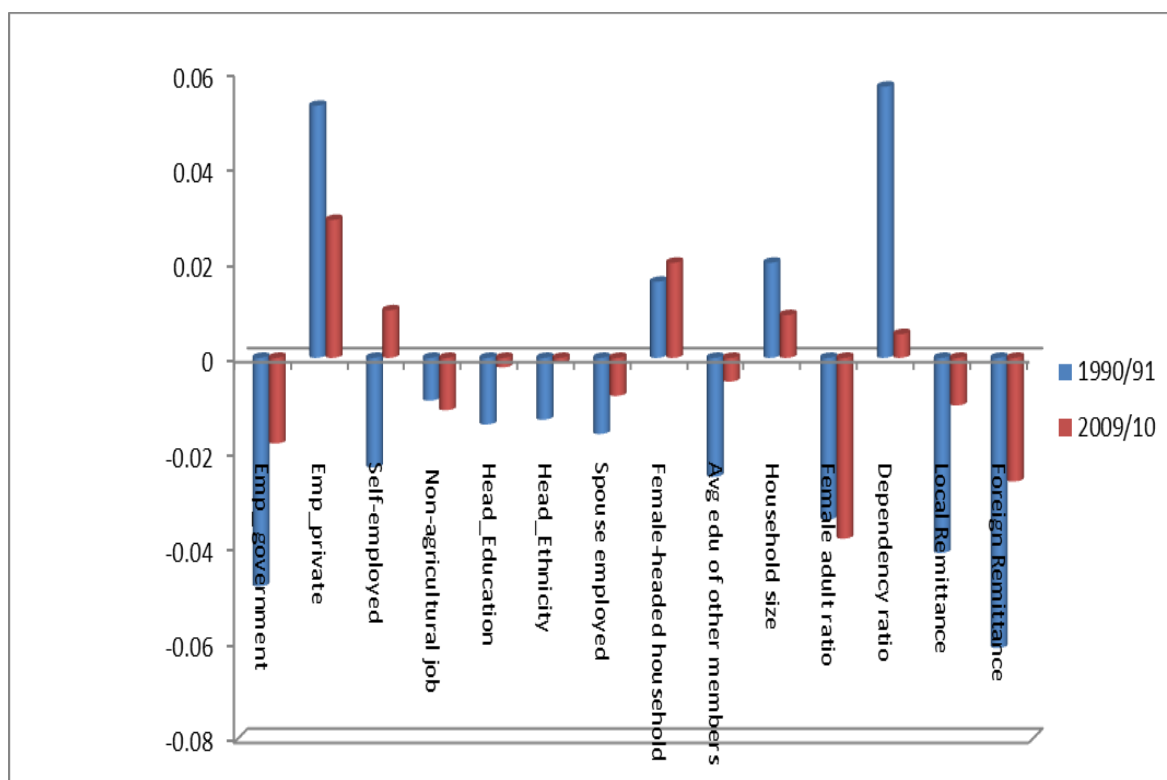
According to the marginal effects from the probit estimates (Table 3.7 and Figure 3.7) foreign and local remittances were significant factors for poverty reduction from 1990 to 2010 in the urban sector in Sri Lanka. Foreign remittances decreased the probability of a household being poor by 6.1 per cent while local remittances reduced the probability of a household being poor by 4.1 per cent in the urban sector, *ceteris paribus*. Although foreign and local remittances were negatively correlated with a household being poor since 1990, the magnitude of the marginal effect had declined significantly by 2010.

Although a positive relationship could be seen between household head engaged in self-employment and poverty in 1990, it has converted into a negative relationship by 2010 in the urban sector. This is the only significant structural change that can be observed within the last twenty years regarding poverty determinants in the urban sector in Sri Lanka.

Education of the head of the household, whether the head is employed in the public sector and engaged in the non-agricultural sector, the spouse being employed, the education of other household members and a higher female adult ratio in a household are statistically significant. All of these variables are negatively correlated with the probability of a household being poor in the urban sector.

Households with a head employed in the private sector or self-employed, having a higher dependency ratio, a large household size and being female-headed are more likely to be poor in the urban sector. Moreover, it can be shown that female-headed households were more likely to be poor in 2010 than in 1990, while all other covariates show a declining impact by 2010. Also, the female adult ratio shows the same trend but it is negatively correlated with household poverty. The main factors affecting poverty in the urban sector did not change over the years, but the magnitude of the impact was reduced.

Figure 3-6: Changes in poverty determinants in urban sector in Sri Lanka: 1990-2010



Source: Compiled by Author using probit marginal values

3.5.4 Changes in poverty determinants in rural sector in Sri Lanka: 1990-2010

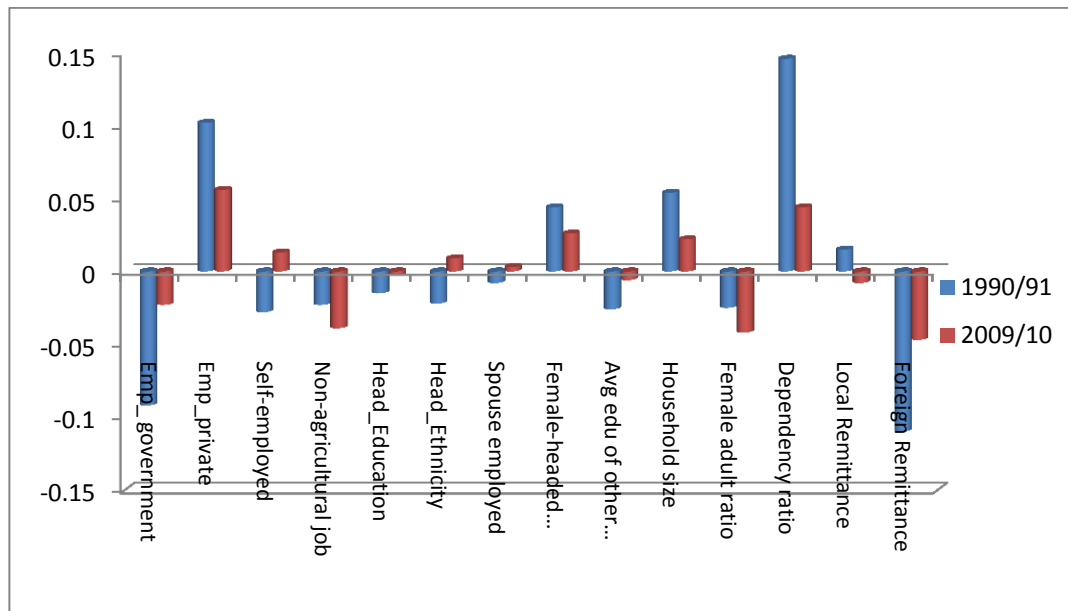
The estimates of the probit regression for the determinants of rural poverty in Sri Lanka (Table 3.7) show that among all the factors affecting poverty, educational level of the head of the household, age of the household head, employment of the household head in the public sector, employment in the non-agriculture sector, spouse being employed, higher female adult ratio and availability of remittances are negatively correlated. Conversely, large household size, higher dependency ratio, female-headed households and household heads employed in the private sector or self-employed are positively correlated with rural poverty.

Those households where the head is engaged in government or non-agricultural jobs are less likely to be poor in the rural sector while the households where the head is engaged in self-employment or employed in the private sector are more likely to be poor. Although the local remittance variable was not significant in 1990 and 2010, it was significant and showed a larger impact on poverty reduction and a negative correlation in other survey periods. Although the magnitude of the foreign remittance variable has declined over the years, it shows a very strong negative correlation with poverty in the rural sector.

As a whole, almost all the coefficients (both positive and negative factors) show a declining trend apart from the female adult ratio and the household head being engaged in non-agricultural activities. Structural beta changes can be examined through the covariates of the household head being engaged in self-employment, the

household head belonging to an ethnic minority, and receipt of local remittances within the last two decades (Figure 3.8).

Figure 3-7 : Changes in poverty determinants in the rural sector in Sri Lanka: 1990-2010



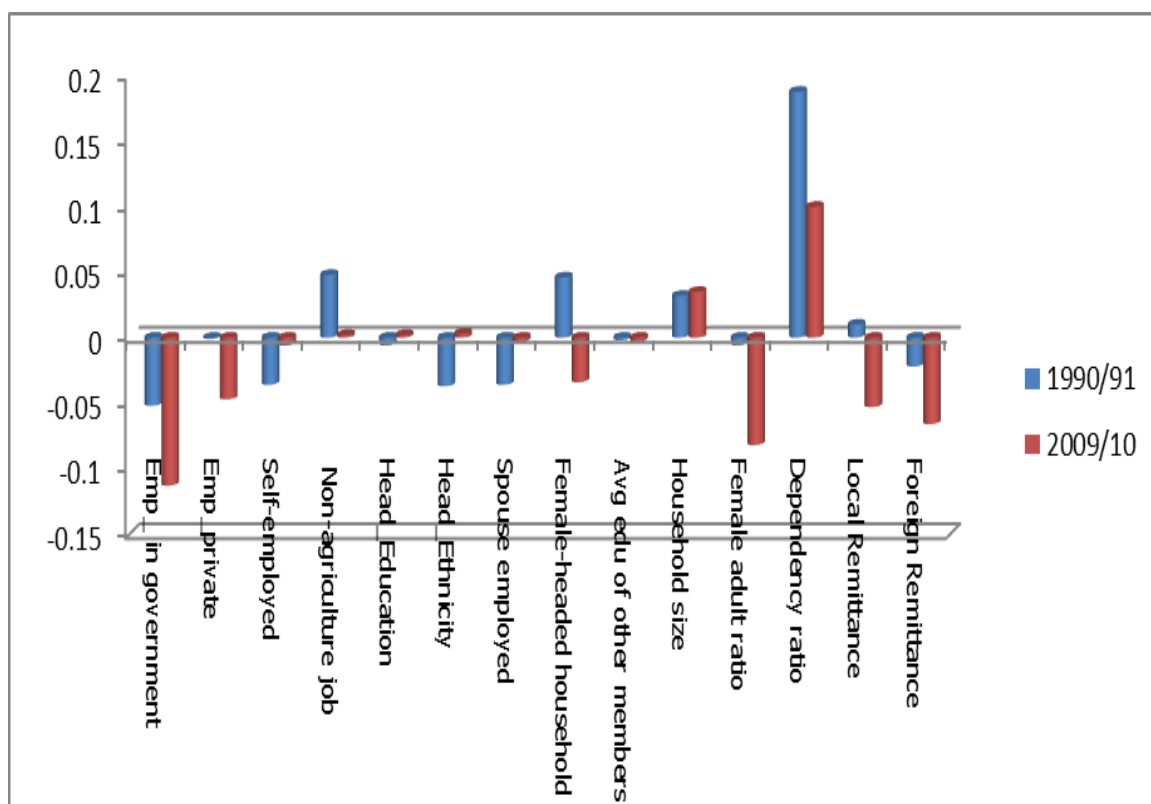
Source: Compiled by Author using probit marginal values

3.5.5 Changes in poverty determinants in estate sector in Sri Lanka 1990-2010

The estate sector shows significant poverty changes compared to the other sectors. Most of the covariates are significant and different from zero (Table 3.7 and Figure 3.9). Two main variables – household head engaged in private sector jobs and engaged in self-employment – indicate a strong negative relationship with poverty in the estate sector, while these variables indicate a positive relationship with the other two sectors. Although education and poverty had negative correlations each year, the

results in 2010 indicate that education of the head of the household and poverty has a positive relationship and it is significant.

Figure 3-8: Changes in poverty determinants in the estate sector in Sri Lanka 1990-2010



Source: Compiled by Author using probit marginal values

Most of the employment opportunities in the estate sector in Sri Lanka are casual and estate-oriented. One reason for this difference could be that those who have obtained a higher education usually refrain from taking casual employment opportunities as they expect white-collar jobs. However, we can treat this as an exceptional case as other results follow the general pattern. Interestingly, the local remittance and female-headed household variables have shown structural beta changes within the last two decades and now indicate a very strong negative correlation with poverty although

they showed positive correlations in 1990. Also the female adult ratio shows a strong negative relationship with poverty in this sector because most notably, female labour is highly employed in the estate sector. Compared to the other two sectors, even though the magnitude of the impact has declined, higher dependency ratios lead to poverty in the estate sector. Although the other two sectors show a declining trend in household size, the estate sector has remained the same over the decades.

Table 3-7 : Changes in poverty determinants in the economic sectors in Sri Lanka: 1990-2010 (Probit regression marginal effects)

Poverty determinants	Urban Sector				Rural Sector				Estate sector			
	1990/91	1995/6	2006/7	2009/10	1990/91	1995/6	2006/7	2009/10	1990/91	1995/6	2006/7	2009/10
Household Head :												
Age	-0.001 (4.05)**	-0.001 (5.90)**	0.000 (0.05)	-0.000 (1.34)	-0.002 (13.62)**	-0.004 (18.71)**	-0.000 (3.81)**	-0.000 (1.40)	-0.000 (0.58)	-0.003 (5.32)**	0.001 (1.33)	-0.000 (0.07)
Employed in government sector	-0.048 (6.78)**	0.018 (1.38)	-0.019 (4.62)**	-0.018 (3.74)**	-0.092 (10.70)**	-0.050 (4.33)**	-0.048 (6.45)**	-0.023 (4.11)**	-0.052 (3.42)**	-0.112 (3.53)**	0.012 (0.36)	-0.113 (9.35)**
Employed in private sector	0.053 (7.83)**	0.107 (10.78)**	0.016 (5.32)**	0.029 (8.48)**	0.102 (14.95)**	0.223 (31.79)**	0.078 (16.05)**	0.056 (14.97)**	-0.001 (0.07)	-0.089 (5.95)**	-0.040 (2.84)**	-0.047 (4.10)**
Self-employed	-0.023 (4.10)**	0.072 (7.09)**	0.001 (0.27)	0.010 (2.87)**	-0.028 (5.27)**	0.067 (11.00)**	0.014 (3.48)**	0.013 (3.70)**	-0.036 (1.49)	-0.119 (4.41)**	-0.014 (0.52)	-0.006 (0.34)
Engaged in non-agricultural job	-0.009 (1.65)	-0.051 (5.90)**	0.011 (4.23)**	-0.011 (3.92)**	-0.023 (4.81)**	-0.104 (19.22)**	-0.032 (9.69)**	-0.039 (14.51)**	0.048 (2.57)*	-0.119 (5.35)**	-0.021 (1.43)	0.002 (0.20)
Education (number of years)	-0.014 (27.55)**	-0.018 (21.97)**	-0.004 (14.79)**	-0.002 (6.11)**	-0.015 (24.30)**	-0.030 (43.85)**	-0.013 (30.44)**	-0.003 (8.35)**	-0.006 (4.09)**	-0.013 (5.72)**	-0.024 (11.99)**	0.002 (3.25)**
Ethnicity (non-Sinhalese =1)	-0.013 (3.32)**	-0.022 (3.61)**	-0.011 (5.75)**	-0.001 (0.74)	-0.022 (2.75)**	-0.072 (8.56)**	-0.063 (17.80)**	0.009 (2.99)**	-0.037 (2.57)*	-0.101 (4.69)**	0.053 (3.01)**	0.003 (0.25)
Household demography :												
Spouse employed	-0.016 (3.06)**	-0.041 (5.32)**	-0.001 (0.39)	-0.008 (3.19)**	-0.008 (1.80)	.004 (0.88)	0.019 (5.90)**	0.003 (1.24)	-0.036 (3.37)**	-0.062 (4.36)**	-0.026 (1.99)*	-0.003 (0.39)
Female-headed household	0.016 (1.61)	0.038 (4.75)**	0.026 (8.20)**	0.020 (8.25)**	0.044 (3.89)**	0.043 (6.36)**	0.021 (5.15)**	0.026 (7.16)**	0.046 (1.58)	-0.043 (1.96)*	0.008 (0.48)	-0.034 (3.05)**
Average education of other members (No of years)	-0.025 (28.49)**	-0.033 (24.65)**	-0.007 (13.43)**	-0.005 (9.92)**	-0.026 (27.77)**	-0.042 (40.39)**	-0.021 (32.15)**	-0.006 (10.87)**	-0.002 (1.04)	-0.023 (7.81)**	-0.023 (8.68)**	-0.003 (2.88)**
Household size	0.020 (30.47)**	0.026 (24.78)**	0.009 (24.26)**	0.009 (24.09)**	0.054 (51.58)**	0.075 (56.58)**	0.030 (36.52)**	.022 (34.56)**	0.032 (14.29)**	0.091 (23.69)**	0.065 (21.27)**	0.035 (16.28)**
Female adult ratio	-0.034 (1.75)	-0.041 (1.78)	-0.008 (0.85)	-0.038 (4.90)**	-0.025 (1.26)	-0.099 (5.66)**	-0.015 (1.19)	-0.042 (4.40)**	-0.006 (0.12)	-0.049 (0.97)	-0.026 (0.51)	-0.082 (2.33)*
Dependency ratio	0.057 (5.89)**	0.009 (0.51)	-0.012 (2.01)*	0.005 (0.92)	0.146 (13.92)**	0.189 (14.24)**	0.031 (4.23)**	0.044 (6.57)**	0.188 (7.91)**	0.526 (14.12)**	0.184 (6.48)**	0.100 (4.68)**
Remittances:												
Local Remittance	-0.041 (4.19)**	-0.094 (10.35)**	-0.011 (2.49)*	-0.010 (2.48)*	0.015 (1.24)	-0.198 (17.32)**	-0.028 (5.05)**	-0.008 (1.66)	0.010 (0.21)	-0.261 (6.23)**	-0.166 (7.25)**	-0.053 (3.62)**
Foreign Remittance	-0.061 (10.12)**	-0.013 (0.60)	-0.016 (4.83)**	-0.026 (9.81)**	-0.110 (9.36)**	-0.101 (8.52)**	-0.060 (10.20)**	-0.047 (12.22)**	-0.022 (0.67)	-0.033 (1.08)	-0.112 (4.46)**	-0.066 (4.57)**
Observations	31578	18250	20109	21952	52701	62798	48677	50650	5688	7887	7036	6983

Note: Robust z statistics in parentheses * significant at 5%; ** significant at 1%

Source: Author's calculation using HIES data in 1990-2010

3.5.6 Quantile regression and determinants of the household poverty in Sri Lanka

This section discusses the quantile-based impact of various demographic and other characteristics on household expenditure in Sri Lanka. Although OLS estimates identify the impact of the covariates on the conditional mean of household expenditure, they do not indicate the size and the nature of these effects on the tails of the household expenditure distribution. The conditional mean measures only the centre of the conditional distribution of the response variable. Conversely, QR estimates provide a better picture of the effects of the covariates and give a more complete summary of the conditional distribution.

The determinants of per capita expenditure at the selected per centiles along the distribution were examined over time by comparing these with OLS at the mean. Table 3-8 and Table 3-9 depict the magnitudes of the determinants of expenditure at different points of the conditional distribution of the household expenditure in Sri Lanka in general in 1990 and 2010 respectively. QR results indicate that the covariates of education, foreign remittances, whether the spouse is employed, the female adult ratio, whether the household head is engaged in a non-agricultural job and belonging to an ethnic minority played important roles in poverty reduction in 1990 (Table 3-8). Regarding female adult ratio, the magnitude of the coefficient has increased in lower expenditure deciles in 2009/10 but decreased in the 90th decile and in the mean compared to 1990/91. If the head belongs to non-Sinhalese ethnicity, they are more likely to be poor regardless of the expenditure quantile in 2010 (Table 3-9). However, compared with the mean, the higher expenditure deciles depict a

greater impact. Sectoral dummies indicate that households located in the urban sector have higher expenditure compared to the other two sectors. Even within the urban sector, higher expenditure deciles indicate higher expenditure levels with respect to the above covariates.

Table 3-8: Determinants of expenditure at mean and selected quantiles in Sri Lanka 1990/91

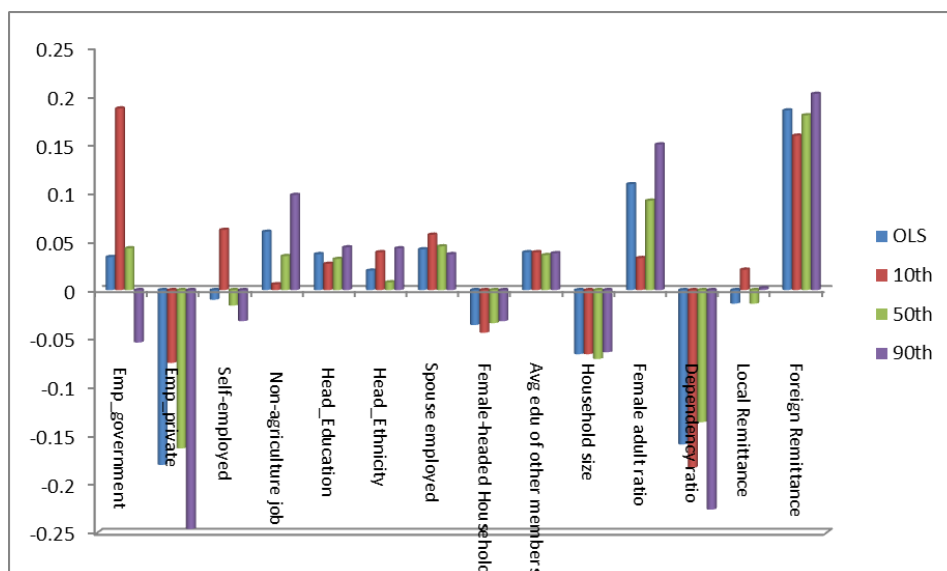
Dependent Variable: lnexp_capita

Poverty Determinants	OLS	10 th	50 th	90 th
Household Head:				
Age	0.003 (24.95)**	0.003 (15.65)**	0.003 (24.02)**	0.004 (22.45)**
Employed in government sector	0.034 (5.26)**	0.187 (17.39)**	0.043 (5.60)**	-0.054 (4.47)**
Employed in private sector	-0.180 (31.40)**	-0.075 (11.30)**	-0.163 (23.38)**	-0.246 (22.82)**
Self-employed	-0.010 (2.06)*	0.062 (7.55)**	-0.016 (2.83)**	-0.032 (4.35)**
Engaged in non-agricultural job	0.060 (14.58)**	0.006 (0.89)	0.035 (6.21)**	0.098 (12.27)**
Education (number of years)	0.037 (69.19)**	0.027 (30.34)**	0.032 (52.40)**	0.044 (60.26)**
Ethnicity (non-Sinhalese=1)	0.020 (4.13)**	0.039 (5.78)**	0.008 (1.29)	0.043 (6.23)**
Household Demography:				
Spouse employed	0.042 (12.03)**	0.057 (10.14)**	0.045 (10.51)**	0.037 (7.15)**
Female-headed household	-0.036 (4.31)**	-0.044 (3.96)**	-0.034 (3.33)**	-0.032 (2.14)*
Average education of other members (No of years)	0.039 (51.13)**	0.039 (35.08)**	0.036 (37.62)**	0.038 (27.30)**
Household size	-0.066 (80.07)**	-0.066 (52.73)**	-0.071 (63.27)**	-0.064 (54.54)**
Female adult ratio	0.109 (7.09)**	0.033 (1.33)	0.092 (6.98)**	0.150 (7.48)**
Dependency ratio	-0.159 (19.14)**	-0.183 (14.37)**	-0.136 (15.18)**	-0.226 (23.11)**
Remittances:				
Local Remittance	-0.014 (1.63)	0.021 (1.26)	-0.014 (1.18)	0.002 (0.11)
Foreign Remittance	0.185 (21.66)**	0.159 (13.23)**	0.180 (17.24)**	0.202 (15.85)**
Region:				
Rural	-0.051 (6.24)**	-0.117 (17.49)**	-0.166 (50.62)**	-0.231 (34.38)**
Estate	-0.217 (27.38)**	0.021 (2.25)*	0.053 (4.41)**	-0.010 (0.60)
Urban	6.507 (479.61)**	5.936 (357.85)**	6.524 (663.49)**	6.998 (394.54)**
Observations	89967	89967	89967	89967
R-squared	0.34			

Source: Author's calculation using HIES data in 1990/91

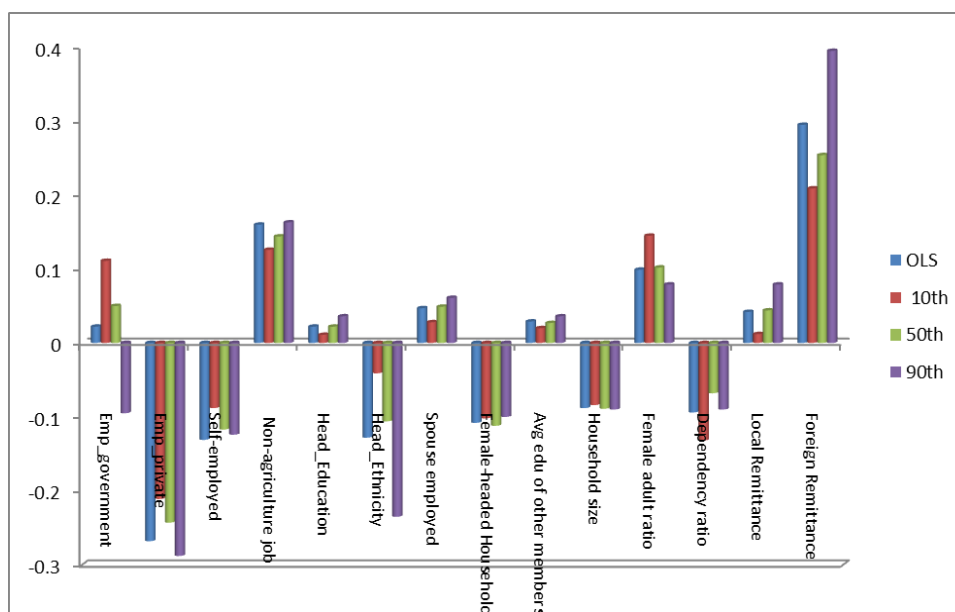
* significant at 5%; ** significant at 1% Robust t statistics in parentheses

Figure 3-9: Changes in the determinants of expenditure at mean and selected quantiles in 1990 in Sri Lanka



Source: Compiled by the author using HIES data

Figure 3-10: Changes in the determinants of expenditure at mean and selected quantiles in 2010 in Sri Lanka



Source: Compiled by the author using HIES data

Table 3-9: Determinants of expenditure at mean and selected quantiles in Sri Lanka 2009/10

Dependent Variable: lnexp_capita

Poverty Determinants	OLS	10 th	50 th	90 th
Household Head:				
Age	0.000 (2.38)*	-0.000 (2.07)*	0.001 (4.72)**	0.001 (4.08)**
Employed in government sector	0.022 (2.81)**	0.111 (6.79)**	0.050 (8.28)**	-0.095 (5.92)**
Employed in private sector	-0.268 (40.68)**	-0.211 (21.88)**	-0.243 (47.56)**	-0.288 (31.01)**
Self-employed	-0.131 (21.30)**	-0.088 (8.97)**	-0.117 (18.20)**	-0.124 (8.68)**
Engaged in non-agricultural job	0.160 (33.71)**	0.126 (22.71)**	0.144 (27.88)**	0.163 (15.79)**
Education (number of years)	0.022 (42.77)**	0.011 (12.29)**	0.022 (39.75)**	0.036 (32.26)**
Ethnicity (non-Sinhalese =1)	-0.128 (29.34)**	-0.041 (5.18)**	-0.106 (23.61)**	-0.235 (29.11)**
Household Demography:				
Spouse employed	0.047 (10.32)**	0.028 (4.20)**	0.049 (13.30)**	0.061 (9.69)**
Female-headed household	-0.108 (19.90)**	-0.102 (14.92)**	-0.112 (17.19)**	-0.100 (8.72)**
Average education of other members (No of years)	0.029 (36.55)**	0.020 (19.79)**	0.027 (33.74)**	0.036 (25.45)**
Household size	-0.088 (78.76)**	-0.084 (53.53)**	-0.089 (82.12)**	-0.090 (42.79)**
Female adult ratio	0.099 (7.04)**	0.145 (7.23)**	0.102 (4.95)**	0.079 (2.37)*
Dependency ratio	-0.094 (9.15)**	-0.132 (11.21)**	-0.068 (6.16)**	-0.090 (4.24)**
Remittances:				
Local Remittance	0.042 (5.22)**	0.012 (1.30)	0.044 (8.75)**	0.079 (4.56)**
Foreign Remittance	0.295 (37.28)**	0.209 (18.56)**	0.254 (46.50)**	0.395 (21.63)**
Region:				
Urban	0.282 (37.45)**	0.271 (25.79)**	0.257 (42.59)**	0.240 (14.96)**
Rural	0.054 (7.55)**	0.079 (6.90)**	0.054 (6.87)**	-0.029 (2.37)*
Constant	8.664 (496.59)**	8.211 (379.77)**	8.620 (445.06)**	9.187 (281.92)**
Observations	79585	79585	79585	79585
R-squared	0.28			

Source: Author's calculation using HIES data in 2009/10

* significant at 5%; ** significant at 1% , Robust t statistics in parentheses

Household size, dependency ratio, being located in the rural and estate sectors, female-headed households, engaging in self-employment and private sector employment show a negative relationship with per capita expenditure despite the income deciles.

Compared to the QR results in 1990 (Table 3-9), the 2010 results (Table 3-10) show an almost similar trend. However, two main variables have changed within the last two decades. These are the ethnic minority variable and local remittance. Accordingly, changes in the coefficients can be examined through the deciles and a few changes can be identified in these two sectors.

3.6 *Decomposition analysis of poverty in Sri Lanka: 1990-2010*

According to Datt and Ravallion (1992b) and Bourguignon (2003), poverty reduction can be examined through increases in mean income (expenditure) or changes in relative income distribution. The change in poverty headcount can be decomposed into two main effects as follows (Figure 3-11):

1. Growth effect
2. Distributional effect

The basic idea of decomposition can be explained as follows. Considering any two dates 0 and 1, the growth component of a change in the poverty measure is defined as the change in poverty due to a change in the mean from μ_0 to μ_1 while holding the Lorenz curve constant at reference level $L_0 = L(p; \pi_0)$. The redistribution component

is defined as the change in poverty due to a change in the Lorenz curve from $L_0 = L(p; \pi_0)$ to $L_1 = L(p; \pi_1)$ while holding the mean constant at the reference level μ_0 (Datt, 1998, p. 17).

This section examined poverty and inequality in Sri Lanka over the past two decades by calculating poverty and inequality measures using the computational tool POVCAL⁴³ developed and distributed by the World Bank. National poverty changes were decomposed into growth and redistribution components following the method of Datt and Ravallion (1992b), using disaggregated household expenditure data from National Income and Expenditure Surveys 1990/91 and 2009/10 in Sri Lanka.

The decomposition is as follows;

Actual poverty change = Growth Component+ Redistribution Component+ Residual

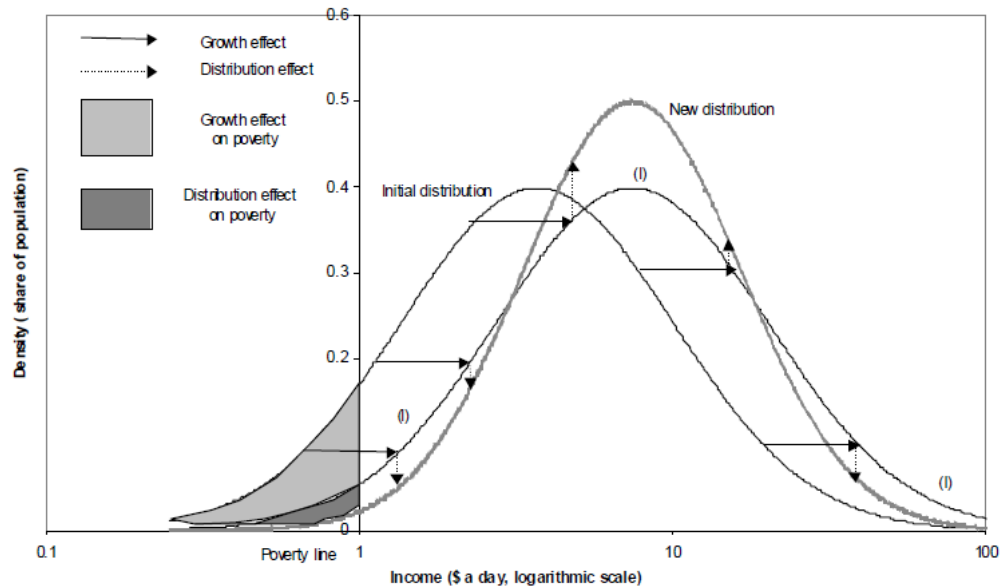
$$P(\mu^{2010}/z, \pi^{2010}) - P(\mu^{90}/z, \pi^{90}) = [P(\mu^{2010}/z, \pi^{90}) - P(\mu^{90}/z, \pi^{90})] + [P(\mu^{90}/z, \pi^{2010}) - P(\mu^{90}/z, \pi^{90})] + \text{Residual}$$

Where μ^t and π^t are the mean consumption and the Lorenz curve for the years 1990 and 2010, and P is the poverty measure (Datt & Gunawardane, 1997). POVCAL generates the Gini index and poverty measures for the Lorenz Curve and gives the elasticities of three poverty measures; poverty headcount, poverty gap and poverty severity with respect to the mean and the Gini Index. For the POVCAL estimations, we need to arrange data in “records” and “subgroups”. The number of records is determined by the number of class intervals or quantiles in the data. There are 10

⁴³ POVCAL is a statistical program designed by Shaohua Chen, Gaurav Datt, and Martin Ravallion at DCE-RG, World Bank. It is an easy-to-use and reliable tool for poverty assessments and uses sound and accurate methods for calculating poverty and inequality measures with only a basic PC and any of the various types of grouped distributional data. For further information See <http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTPOVRES/EXTPOVCALNET/0,,contentMDK:21869518~menuPK:5315130~pagePK:64168445~piPK:64168309~theSitePK:5280443,00.html>

records presented in deciles. The number of subgroups corresponds to the number of exhaustive and mutually exclusive groups such as rural and urban households (Essama-Nssah, 2005).

Figure 3-11: Decomposition of change in poverty into growth and distribution effects



Source: Bourguignon (2003, p. 9)

Growth and redistribution components of the changes in poverty in Sri Lanka within the last two decades were obtained following the method of Datt and Ravallion (1992b) and the results are presented in Table 3-10. The decomposition of the poverty change was done using the poverty headcount ratio, the poverty gap index and the severity of poverty in Sri Lanka. HIES data in 1990 /91 and 2009/10 were used to calculate the poverty headcount, poverty depth and the severity of poverty using national poverty lines for the respective years. Table 3-10 shows that mean consumption in Sri Lanka has increased; therefore the growth component has contributed to significant poverty reduction within the period 1990/91 to 2009/10.

Further, the results confirm that the significant poverty reduction in Sri Lanka is fully accounted for by the increase in mean consumption. This effect carried through to the other poverty measures as well. Although usually the redistribution component is negative, here it has a positive value, indicating that the redistribution component has dominated the growth component of the change in poverty in Sri Lanka over the last two decades.

Table 3-10 : Decomposition of change in poverty in Sri Lanka: 1990 to 2010

Actual poverty change = Growth Component+ Distribution Component+ Residual			
Poverty change	Headcount (FGT0)	Poverty gap (FGT1)	Poverty Severity (FGT2)
Total Change 1990–2010	-1.9841	-0.7694	-0.2828
Growth Component	-2.1470	-0.6514	-0.2211
Redistribution Component	0.3590	-0.0888	0.0641
Residual Component	-3.7721	-1.5096	-0.4398
Source: Author calculations using 1990/91 and 2009/10 HIES data			

Observing the changes in average income (growth effect) and in income inequality (redistribution effect) is very important in understanding poverty changes, since this will lead to effective policy decisions.

3.7 Conclusion

This chapter focused on changes in micro-level poverty determinants over time, over sectors, and over expenditure deciles from 1990 to 2010, and on their behaviours

during the same period. The results show that the major determinants of household poverty in Sri Lanka are human capital-related factors which can be linked to the labour market. This is a common factor for each sector despite the expenditure quantiles in Sri Lanka. Also it was apparent that increasing the level of education (number of years schooling) of the head of the household, and education of other family members decreased household poverty in Sri Lanka⁴⁴ irrespective of the sector and expenditure quantiles.

Another major observation is that the characteristics of the household head and other family members, notably employment, gender, age of the head of the household and household size, dependency ratio, and receipt of remittances have significantly influenced household poverty in Sri Lanka during the past two decades.

However, the results indicated that despite significant reduction of poverty in Sri Lanka by 2010, female-headed households are more likely to be poor, although this is less likely in the rural and estate sectors than in urban areas. The larger the household size, the greater the likelihood of being poor, and the impact is greater in the estate and rural sectors. Factors affecting poverty vary according to the location of the household.

It was observed that both international and internal remittances have contributed significantly to poverty reduction in Sri Lanka throughout the period 1990–2010. QR showed that remittances played a significant role in poverty reduction in each sector

⁴⁴ In contrast, a positive relationship can be seen between the educational level of the head of the household and household poverty in the estate sector for the year 2010.

and higher expenditure quantiles indicated a higher impact. Further, the 2009/10 results confirmed that local remittances have contributed tremendously to poverty reduction in the estate sector.

Poverty decomposition results indicate that the mean consumption in Sri Lanka has increased; therefore the growth component has contributed to significant poverty reduction within the period 1990/91 to 2009/10. Further, the results confirm that the significant poverty reduction in Sri Lanka is mainly accounted for by the increase in mean consumption. Although usually the redistribution component is negative, here it has a positive value, indicating that the redistribution component has dominated the growth component of the change in poverty in Sri Lanka over the last two decades.

Chapter 4: The economic impact of labour migration from the rural to urban sector in Sri Lanka

*.....differences in net economic advantages, chiefly
differences in wages, are the main courses of migration.*

-J.R. Hicks (1932, p. 76)

4.1 Introduction

Rural-to-urban labour migration plays a significant role in poverty reduction in rural economies and labour movement from rural villages to cities can be viewed as a universal phenomenon of economic modernization. Despite abundant research on this topic, there is no clear consensus among researchers on the pattern of migration and remittance inflows. Although international labour migration has gained more attention than rural-to-urban labour migration⁴⁵ in the recent debate on migration and development (Clemens, 2011), migration practices and remittances⁴⁶ have been considered as significant livelihood development strategies for many poor groups in developing countries across the world (Deshingkar & Grimm, 2005). Moreover, in earlier decades, research on rural-to-urban migration in developing countries mainly focused on urban economies and thus paid less attention to its effects on rural communities (Oberai & Singh, 1980).

⁴⁵ Here onwards labour migration refers to the temporary labour migration from rural sector specially from farming communities to urban sector in Sri Lanka.

⁴⁶ Remittances refer to the money and in-kinds that are transmitted back to their homes by people working away (migrant workers) from their place of origin.

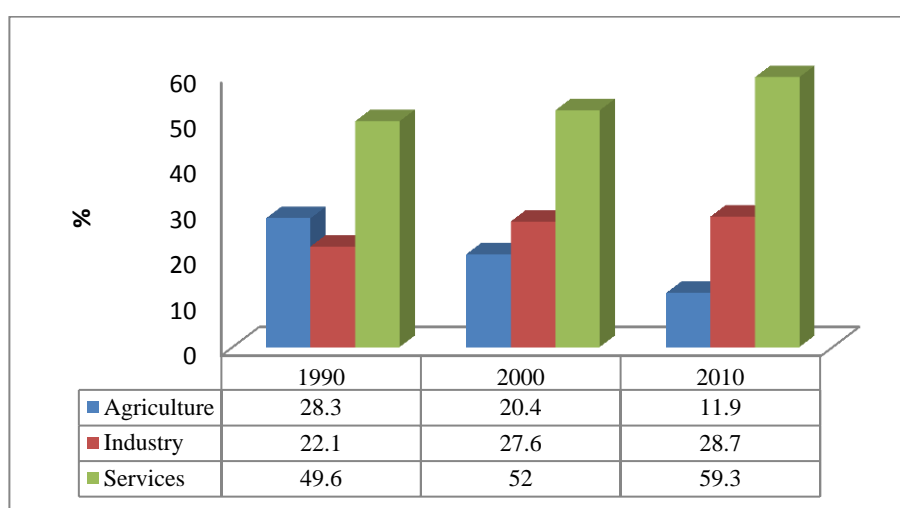
In contrast, the impact of rural-to-urban migration on the sending communities has gained considerable attention in the recent decades, not only in economics but also in other relevant fields such as geography, sociology and demography (De Hass, 2006; Taylor & Martin, 2001). The migration process as a whole, either international or internal, releases significant labour market pressures due to the regional disparities in many developing nations like Sri Lanka. Thus, migration research and policy have focused on internal and international migration separately over the last fifty years (DeWind & Holdaway, 2008). Within this research arena, rural-to-urban migration within developing countries and migration between regional labour markets within industrialized countries have been the main focus.

Some studies on migration indicate that internal migration is more important than international migration (Deshingkar & Grimm, 2005; DeWind & Holdaway, 2008). For example, in countries like China,⁴⁷ Vietnam and India, the number of internal migrants is higher than the number of international migrants. Further, these studies indicated that internal migration and remittances have significant effects on poverty reduction in developing countries. Unfortunately, Sri Lankan migration studies have not paid sufficient attention to quantifying the impact of rural-to-urban temporary labour migration on the migrant-sending communities and/or rural development in comparison to the attention paid to international migration. The following section examines labour migration in Sri Lanka with respect to agricultural communities.

⁴⁷ According to Lackzko (2008) although the scale of internal migration globally has not been recorded, the number of people involved in internal migration is far greater than the level of international migration. For example, in 2006, the UN recorded that 61 million migrants moved South-South, while China alone counted 126 million internal migrants in the same year.

Agriculture has remained one of the main sources of employment in Sri Lanka since independence. Although the services sector has overtaken it recently, nearly one third of the population is still employed in the agricultural sector, contributing 11.9 per cent of GDP in 2010 (Figure 4.1 and Figure 4.2).

Figure 4-1: Sectoral contribution to GDP in Sri Lanka 1990-2010



Source: Central Bank of Sri Lanka

Note: 1990 data based on GDP at constant prices (1996=100)

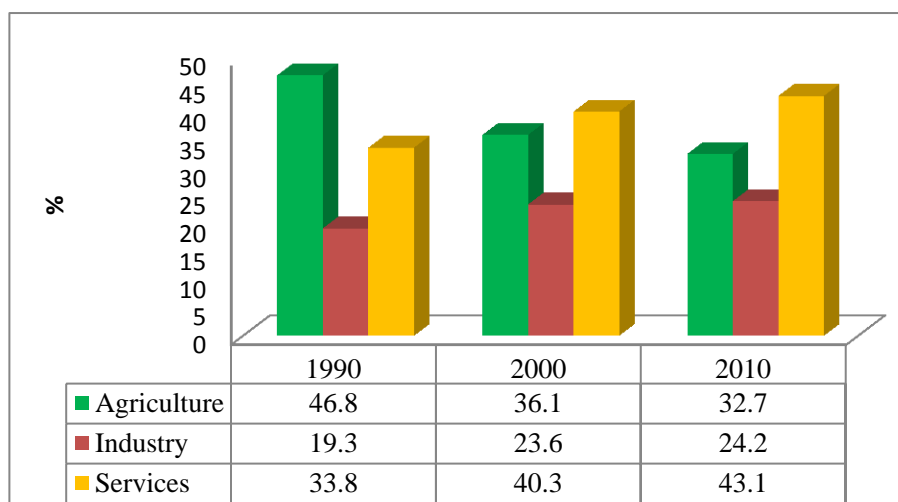
2010 data based on GDP at constant prices (2000=100)

Following economic liberalisation in 1977, the country has experienced a large movement of rural labour, which is predominantly agricultural, seeking employment opportunities in the Export Processing Zones (EPZ) in the main cities in the Western Province (Karunatilake, 1987)⁴⁸. EPZs, which were established with the intention of absorbing surplus rural labour, are the main compelling reason for rural-to-urban

⁴⁸ In 1987, more than 75 percent of the employees in the EPZ were female workers. Furthermore, unskilled and semi-skilled labour accounted for 78 per cent of the total workforce in the zone (Karunatilake, 1987).

temporary migration. Secondly, the availability of educational opportunities in the urban sector has compelled people to migrate to the cities over the last few decades. In addition, insufficiency of arable land, capital constraints, low productivity⁴⁹ and personal attitudes have forced rural workers to move to the cities (Laksman, 2000).

Figure 4-2: Sectoral contribution to total employment in Sri Lanka



Source: Central Bank of Sri Lanka

Considering the remittances received by each household, it is clear that not only international remittances but also local remittances play a significant role in poverty reduction in Sri Lanka⁵⁰. Local remittances received by households have been a highly significant factor in determining household poverty/expenditure in Sri Lanka since 1995/96, regardless of the income quantiles⁵¹ or the economic sectors. However, the few studies that have addressed internal migration in the context of Sri Lanka have not focused on the economic impact of internal labour migration and

⁴⁹ Nearly one third of the labour force produces just over 10% of GDP, signaling the low productivity of agriculture.

⁵⁰ See Chapter 3 for more details.

⁵¹ See Chapter 3.

remittances on rural farming/sending communities. Most of the studies have attempted to identify international migration patterns and their economic impact and social consequences on Sri Lanka (Shaw, 2010; Ukwatta, 2010). Thus, a significant gap exists in the internal migration literature for Sri Lanka and this chapter represents part of the effort to fill the gap by measuring the economic impact of rural-urban labour migration, targeting agricultural communities in Sri Lanka. Further, this study adds value to the Sri Lankan migration literature by offering a new empirical evaluation of the characteristics of rural-to-urban labour migrants and their families together with the determinants of their movements and their usage of remittances. Another aspect of the present study is its focus on the internal labour migration of agricultural communities within a framework of rural development and poverty reduction.

Data was drawn from a sample survey conducted from January to April 2011 by the author in ten factories in Gampaha District where a majority of Sri Lanka's factories are located. This is the largest ever non-random⁵² sample survey of workers who have migrated from rural farm households to work in urban factories in Sri Lanka.

4.2 *Migration theories and empirical literature*

Migration literature has been enriched by the enormous contribution of economists, demographers, sociologists and geographers since the 1960s (Greenwood, 1975). Migration has emerged as a debatable global development strategy with profound

⁵² Random sampling was impossible due to restrictions in the factories. Through BOI contacts, the researcher was able to get approval to visit these selected factories.

opportunities and challenges for both sending and receiving communities (Todaro, 1980). Although increasing attention from researchers has brought migration issues to prominence in recent development debates, the history of migration goes back to the 1880s. The theory of migration history starts with Farr's remark⁵³ on migration⁵⁴ and Ravenstein's response to that, known as the "Laws of Migration" Lee (1966). This section attempts to summarize theories of labour migration, focusing on classical and neo-classical migration theories and the theory of the new economics of labour migration (NELM). Further, this section examines the links between migration and development, migration and remittances, and looks at empirical studies on the impact of rural-to-urban migration and remittances on rural livelihood improvement in developing countries.

4.2.1 Classical and neo-classical theories of labour migration

The conceptual framework of migration can be reviewed in a broad range of studies ranging from Ravenstein's Laws of Migration to the famous Harris-Todaro model and the new economics of labour migration (De Haan, 1999a). All these studies discuss both internal and international migration. However, Lewis (1954) initiated the idea of rural-to-urban migration using his two-sector model comprising the traditional (agriculture) sector and the modern (industrial) sector and showed that expansion of the modern sector absorbs cheap labour shifting from the agricultural sector.

⁵³ This refers to a remark of Farr's to the effect that migration appeared to go on without any definite law.

⁵⁴ One of the first systematic studies of migration was by Ravenstein (1885). He states that the motivation for his study "was a remark made by the late Dr. William Farr [1876], to the effect that migration appeared to go on without any definite law...." (Ravenstein, 1885; p. 167) in (Greenwood, & Hunt, 2003, p.6)

Although the population size is large, the marginal productivity of rural labour is zero. When the industrial sector continues to expand, surplus labour in the agriculture sector will ultimately vanish, pushing up wages. This conceptual framework closely follows that of Ranis and Fei (1961). Nevertheless, these studies did not consider urban-to-rural financial/in-kind transfers or remittances or the welfare impact of migration on the left-behinds in the rural sector and the in-kind flows from rural to urban areas through migration.

Although Ravenstein (1885) made the first attempt to work on rural urban migration, Sjaastad (1962) decisive work on rural-urban migration has informed economists' thinking on this debatable issue. Further, he has focused on the differences in earnings and emphasized how effective is migration in equalizing inter-regional earnings of comparable labour.

4.2.2 New economics of labour migration (NELM)

The new economics of labour migration emerged in the 1980s and 1990s, mainly in the American research context, as a response to both the developmentalist theory (the migration optimists) and the structuralist theory (the migration pessimists) (Taylor, 1999). NELM was pioneered by Stark (1982) and has been documented by some micro-econometric studies that have attempted to test it (Lucas & Stark, 1985; Taylor, 1995). According to the NELM theory, migration is hypothesized to be an effort by households to overcome market failures that constrain local production. Further, Stark (1991) and Taylor (1999) stated that NELM scholars argue that

migration plays a vital role in providing a potential source of investment capital. This is very important in the context of the imperfect credit and risk (capital and insurance) markets that prevail in most developing countries. As such, these markets are weakly developed. Migration can also be considered as a strategy to overcome various market constraints. It also enables households to invest in productive ways (De Hass, 2006). The NELM represents a fundamental change in how the connection between migration and development is conceptualized and modelled (Taylor, 1999). Further, NELM views migrants as financial intermediates, providing capital for investment in farming activities in the sending communities and providing insurance for their households.

It is necessary to widen our understanding of rural livelihoods in developing countries without concentrating only on agriculture and natural resources, as households are diversifying their livelihoods. In this process, migration is one of the main securities and potential tools that enable them to diversify and improve their livelihoods. Further, agricultural intensification and local non-farming activity also support diversification of livelihoods (McDowell & Haan, 1997).

4.2.3 Migration and development

The role of migration in economic development is extensively acknowledged. Over the last five decades, migration research and policies have focused on internal and international migration separately (DeWind & Holdaway, 2008). Over the last two

decades, internal migration in general and rural-to-urban migration in particular have been scrutinized favourably in the economic development literature (Todaro, 1980). Migration is generally considered a developmental issue with profound opportunities and challenges for both source and destination areas.

Arthur Lewis (1954) first demonstrated that a gradual reallocation of the labour force from the agricultural sector to the urban industrial sector is considered the main issue in economic development. Kuznets (1971) and Todaro (1980) further emphasized that the process of relocating rural farm labour to urban enterprises is supposed to be economically and socially beneficial. This is because human resources are being shifted from places where marginal products were assumed to be zero to places where the marginal products were not only positive but also rapidly growing as a result of capital accumulation and technological progress. Taylor and Martin (2001) stated that the relationship between development and migration varies over time and space. Consequently, time and geographical context are very important factors when assessing the impact of migration.

Although for many years migration has been viewed as an outcome of lack of development (Clemens, 2011), policy makers in both sending and receiving countries are highlighting the positive potentials of migration and development today. Despite growing recognition of the international policy debate on international migration, comparatively little attention has been paid to the significance of internal migration and development (Laczko, 2008). Hence, the extent of internal migration has not been sufficiently explored compared to international migration globally.

Nevertheless, Zohry (2009) observed the existence of a significant number of recent studies on the developmental impact of internal migration vs. international migration. He further noted that the main difference between these two migration processes is that international migration implies cross-border moves while the other involves cultural restrictions. In the Sri Lankan case, there are restrictions for outmigration for married females from their husbands and to unmarried females from their family members. Crossing international borders is regulated by migration laws and regional and international agreements. Nevertheless, there are regions in the world that do not have physical boundaries. For example, in Africa, there are no physical boundary barriers for potential migrants (Adepoju, 1998).

However, the migration and development relationship is complex. Migration implies a change of the place of usual residence and development implies better living conditions; assessing the relationship between these two is not an easy task (Skeldon, 1997). Migrants' remittances are the main visible indicator that can be used to assess this relationship.

Empirical studies on migration and development reveal different impacts on development, depending on the type of movement, the effect of remittances and the development nature of the place of origin. Zohry's (2009) findings from an Egyptian study indicate that both internal and international migration are deployed as development strategies to escape poverty and poor economic development. Further, this study indicated that migration is more a strategy to decrease vulnerability to

poverty among poor groups than to maximise benefits. Hence, both internal and international migrations are important in enabling livelihood diversification among households through migrant remittances. According to internal migration and development theories, internal migration is a means to escape poverty and reduce regional economic imbalances. Anh (2005), based on data from China, Bangladesh, Vietnam, and the Philippines, demonstrated that migration is an impetus to growth and a key path out of poverty with a remarkable positive impact on the livelihoods and well-being of the poor.

Although the correlation between migration and development has been widely examined both at macro and micro levels and there is a huge interest in investigating this relationship, findings are still not adequate to make any significant generalization about the relationships between these two factors. Theoretical and empirical studies on the impact of migration in sending and receiving countries seek to find the best answer to questions about socio-economic development and labour market problems. In particular, the impact of rural-to-urban migration on development needs to be empirically examined more widely.

4.2.4 Remittances and household development

Migration is not a new phenomenon and it is the oldest action against poverty (Galbraith, 1979). The most direct impact of migration is remittances. For many rural households in developing economies, remittances are a fundamental element of

livelihood strategies (De la Briere, Sadoulet, De Janvry, & Lambert, 2002). Thereby, the role of remittances has been a decisive element in explaining household strategies regarding migration. The economic outcomes of remittances can be discussed as focusing mainly on consumption, investment, poverty and inequality. Expenditure is the primary indicator of household welfare. Remittances are taken as part of household income; they can also be directed towards household investment. Then, investment can be identified as the household's future capacity for expenditure. Most studies on internal and international migration and remittances have concluded that remittances improve consumption rather than investment (Zosa & Orbeta Jr, 2009).

Even though some studies (Gunathilaka, 1986; Murrugarra, Larrison, & Sasin, 2010; Skeldon, 2002) have confirmed that migration offers a way out of poverty, other studies argue that migration has less favourable impacts on livelihood improvements. Taylor and Filipinski (2011) have argued that the direct impacts of worker remittances on poverty and rural welfare show discrepancies among and within economies, depending on the income distribution of the migrant-sending communities. A number of studies in Mexico highlighted that remittances from international migrants had little impact on poverty in regions where the frequency of migration was low and a larger effect on areas where the frequency of migration was high (Taylor, Adams, Mora, & López-Feldman, 2008). Stark, Taylor, and Yitzhaki (1986) and McKenzie and Rapport (2007) noted that as migrant networks expand, worker remittances reduce income disparities. Nevertheless, Stark et al. (1986) found evidence that even

when access to networks is prevalent and remittances minimize income disparities, international migration does not benefit the poorest households.

Put simply, economic theory on migration indicates that remittances increase the income of the households receiving them and consequently, households are more likely to increase their expenditure on normal goods. Based on Philippines household survey data, Tabuga (2007) indicated mixed evidence of the impact of remittances. He further showed that a considerable proportion of international remittances was spent on conspicuous consumption; however, education and housing expenditure also increased. Further, this study emphasized that households spent relatively smaller amounts from remittances on tobacco and alcohol. Ratha, Mohapatra, Scheja, et al., (2011), based on studies conducted in Africa, Latin America, South Asia and some other regions, pointed out that remittances reduce the depth and severity of poverty while stimulating economic activities indirectly.

Considering the effects on consumption, the effect of remittances is not limited to total consumption expenditure; it also influences the distribution of different items of expenditure. Consequently, it is useful to study the impact of migration and remittances on both the total consumption expenditure and the expenditure patterns of households.

Migration produces indirect effects within migrant-sending households as these households adjust their production and consumption behaviour in light of the loss of the migrant's labour and the receipt of remittances. As mentioned above, remittances

affect household demand by shifting household budget constraints. However, the depth of the poverty reduction and its sustainability depends on the background of the migrants and the prudent use of remittances by the migrant-sending households. Hence, the magnitude of the correlation of remittances and poverty reduction differs according to individual migrants, the characteristics of migrant households, usage of remittances, and time and space.

4.2.5 Internal migration and sending communities

An emerging interest is currently visible among academics, policy makers and researchers regarding rural-to-urban labour migration, remittances and their impact on the left-behind in the place of origin, although the focus on international migration is still dominant. The overall impact of rural-to-urban migration on the migrants and their households in the original communities is viewed positively. The main characteristic of rural-to-urban migration that is seasonal or circular is that migrants leave the place of origin for various employment opportunities for varying lengths of time, usually with the idea of returning. Their main purpose is to work in cities but not to settle in cities permanently⁵⁵. Mostly, they are supporting their communities through remittances while remaining a part of those communities. Hence, migration is considered as a factor which acts to improve consumption and income levels and leads to poverty reduction directly in migrant-sending households and indirectly in the rural sector.

⁵⁵ This conclusion is based on the field survey conducted by the author.

Many countries in Latin America, Africa, and Asia have attempted to explore rural-to-urban migration from different perspectives. Todaro (1980) indicated in his study on internal migration in developing countries that migrants typically do not represent a random sample of the overall population; on the contrary, they tend to be disproportionately young, better educated, less risk-averse and more achievement-oriented. They have also better personal contacts in their destination areas than the general population in the place of origin. Further, his study pointed out that people migrate primarily for economic reasons. If there is a large difference in economic opportunities between urban and rural sectors, larger flows of rural-to-urban migration can be observed in any country.

Deshingkar (2006), using case studies on short term internal or circular migration involving villages and regions, emphasized that internal migration has greater potential for poverty reduction and for contributing to economic growth in developing countries. This study further indicated that international remittances reach fewer people while internal migration stems from a broader base where smaller sums of money are more evenly distributed among specific areas and poor families. Further, this researcher argued that the potential benefits of internal migration are not completely recognized due to an inadequate understanding of this process.

Empirical studies show that China has made a large contribution to the literature on rural-to-urban migration. Millions of Chinese farmers have moved to urban areas to seek employment both temporarily and permanently (Ha, Yi, & Zhang, 2009; Li &

Zahniser, 2002). Furthermore, rural-to-urban migration has been viewed as a positive factor in China. Deshingkar (2006) indicated with respect to Asian countries that most of the common factors such as regional disparities, high unemployment and underemployment in the rural sector and the spread of labour-intensive industries in urban areas under open market economies motivate rural labour to migrate to urban cities. However, the results change over time and space and therefore, the benefits of migration should be examined or reevaluated in a range of settings and periods.

Mendola (2008) argued that richer and larger households are more likely to participate in costly high-returns migration (international migration) and are then able to employ modern technology and achieve higher productivity. However poorer households tend to receive lower returns from migration due to the unaffordable nature of the entry cost of migration. Therefore, they engage in internal migration which does not help them to achieve production enhancements comparable to those from international migration.

The decision to participate in either international or internal migration is a decision that impacts the welfare of the household, the home community and in the end, the whole economy (Ratha et al., 2011). The welfare implications of international migration for the country of origin are more often positive and sizable. However, more research is required to judge whether the welfare implications of temporary rural-to-urban migration are positive and sizable in the context of rural development. Compared to international migration, it is still an immature literature which is too sparse to allow generalisation from the findings of rural-to-urban migration to

community development. The present study is an attempt to obtain more empirical evidence, with respect to Sri Lanka, on this issue and thus contribute to the body of research on the topic.

4.2.6 Internal migration, remittances and Sri Lanka

Sri Lanka is a small island that was under foreign rule for over four centuries and regained independence in 1948. Prior to independence, the economy was dominated by the commercial plantation sector, including mainly tea, rubber and coconut. Although Sri Lanka has become increasingly industrialised since the 1950s, it adopted a liberal economic model instead of inward-looking economic policies in 1977 (Kelegama, 2007). These economic reforms have transformed the Sri Lankan economy from a colonial export-oriented structure to an export-led manufacturing one, resulting in the emergence of rural-to-urban migration⁵⁶ within the country. With the establishment of the EPZs with highly labour-intensive factories, demand for both skilled and unskilled labour increased tremendously. Hence, there was a flood of migration from rural communities to the main cities. Since 1978, a majority of young single women have formed the backbone of an economic shift in Sri Lanka towards export-led industrialization. As most of the workers are migrants from rural villages, they contribute, through remittances, to developing the rural economy in Sri Lanka by supporting households in their areas of origin. EPZs have made a large

⁵⁶ Although internal migration existed prior to the market reforms in Sri Lanka, the rural-to-urban migration on which this study focuses emerged significantly after the establishment of EPZs in 1978. Especially with the economic reforms and accompanying changes in socio-economic conditions in Sri Lanka, female migration was accelerated through EPZs.

contribution to poverty alleviation in Sri Lanka.⁵⁷ High unemployment and youth unrest have compelled a majority of young females to undertake the primary breadwinner role for their households. This demonstrates that rural-to-urban migration contributes significantly to rural communities and it is helpful to examine and quantify the direct impact of internal migration on migrant-sending communities.

In terms of international migration and remittances, Sri Lanka occupies a prominent place (Athukorala, 1990; Eelens & Speckmann, 1990; Shaw, 2010; Ukwatta, 2010). Shaw (2010) indicates that many studies have attempted to investigate housemaid migration to the Middle East from diverse perspectives including experience abroad, remittances and the impact of migration on the remaining members of the family. His study also contributes to the existing literature in the field. Kageyama (2008) argues that migration and remittances bring both positive and negative impacts to the home countries. She further emphasizes that remittances economically benefit migrant households, particularly the poorer ones, by increasing income in the short-run, while causing negative social effects through disruption in the migrants' families and also by creating a sense of relative deprivation in non-migrant families.

Zohry (2002) indicated that growing difficulties in finding productive employment in rural areas created a new type of human migration. Unmarried youths in rural areas, where the economic base is heavily depending on subsistence agriculture and where

⁵⁷ http://www.enebuilder.net/globalcompact/e_article000776336.cfm access date 9/10/2011. Submitted by: Kamani Jinadasa, Manager, Women's Empowerment & Go Beyond, Corporate Branding & Strategic CSR, MAS Capital (Pvt) Ltd, under the heading "MAS Holdings: Championing Women's Empowerment in the Apparel Sector".

they are not treated well, face a different set of employment problems than young people face in urban environments, where the economic base is highly varied. She called this new type of migration “survival migration” (Zohry, 2002, 2009).

Sri Lankan internal migration, which is the focus of this chapter, differs from classical migration theory, which indicates that rural-urban labour movements occur due to agrarian systems and agricultural seasonality. It shows similarities to Zohry’s study (2009), which indicated that Egyptian internal migration is independent of agricultural seasonality as surplus labour can occur at any time. As in the Egyptian case, there is no survival option for Sri Lankan young rural labourers, especially female, other than migration locally or internationally. Due to the higher travel costs for international migration, the usual response is migration to cities within the home country. Nearly 80 per cent of the population in Sri Lanka belongs to the rural sector, where the source of income for the household is predominantly agriculture, and 83 per cent of the total poor belong to the rural sector in Sri Lanka (DCS, 2011)⁵⁸. Thus, migration and remittances are the key areas of livelihood strategies for poor households and this allows diversification of the source of income of Sri Lankan households.

Although there has been a flood of migration from the rural sector to the urban sector since 1977 with the establishment of EPZs, there is a dearth of research on rural-to-urban migration in general and of analysis of the economic impact of rural-to-urban migration on rural communities in particular. Even the existing few studies on

⁵⁸ Further details, see http://www.statistics.gov.lk/HIES/HIES2009_10FinalReport.pdf

internal migration have focused on migration patterns, determinants and consequences of lifetime inter-district migration, along with demographic perspectives in Sri Lanka (Perera, 2008, 2005 ; Ukwatta, 2005). Ukwatta (2005) has further argued that internal female migration from agricultural areas is higher than male migration due to EPZs, while women's participation in agriculture has declined in the recent past. However, none of these studies emphasize the impact of internal migration and remittances on the sending communities.

There is a huge shortage of migration data, particularly on rural-to-urban migration, as a migration survey is not yet planned for Sri Lanka. The Population Census⁵⁹ is the only reliable source of data on internal migration. Due to lack of data and statistics, there are few attempts to study internal migration and development in the country. The impact of migration and remittances on rural communities and how migration contributes to transform the rural sector in Sri Lanka needs to be examined from the micro perspective.

Although rural-to-urban migration has contributed immensely to household poverty reduction⁶⁰ and income diversification strategies in rural communities in Sri Lanka, there have been no attempts in the literature to identify and quantify these impacts. According to available sources, the present study is the first one to examine the economic impact of rural-to-urban labour migration in Sri Lanka. Hence, the present

⁵⁹ The Population Census conducted by the Department of Census and Statistics is the most reliable source of data on internal migration in Sri Lanka. Although it has been conducted since 1946, detailed information on internal migration was collected in 1971 and 1981. Then, due to the Civil War, no Population Census was conducted until 2001, which was the latest. Internal remittances data are included in HIES surveys.

⁶⁰ See Chapter 3 of this thesis.

study fills a literature gap concerning rural-to-urban migration in Sri Lanka with respect to the importance of the effects of internal migration on poverty reduction and rural development in the country. Further, this study highlights the importance of detailed and systematic surveys of internal migration in Sri Lanka.

4.3 *Methodology*

4.3.1 Data Collection

Data for this analysis were obtained from a survey conducted by the author between January and April 2011 in Sri Lanka⁶¹. The survey comprised 377⁶² rural-to-urban migrant workers who were selected non-randomly from 20 selected urban factories located in Gampaha District in Sri Lanka. The respondents were interviewed, using a structured questionnaire, on their migration and work history, demographic characteristics of the worker and their household members, place of origin, purpose of remittances and use of the remittances by household members.

The non-representative nature of the sample survey data is a problem in this survey. However this is a common problem in developing countries. In particular, in this survey it was difficult to obtain a representative sample from each factory due to the restrictions imposed by the factories.⁶³ Further, workers get limited time for lunch

⁶¹ To conduct this survey, the necessary ethical approval was received from the ethics committee of the University of Waikato and the consent document is attached in Appendix 4.

⁶² Although 400 migrants were surveyed, there were some incomplete records and I had to reject a few.

⁶³ As the factories were very much concerned with minimizing production costs, I had to be patient to get respondents released from the production lines (one at a time).

breaks so that there was not sufficient time to talk to the respondents at lunch time⁶⁴. In addition, there were difficulties in selecting the sample in terms of matching the migrants with the pre-requisites of the survey, such as one year of experience in the factory, living temporarily outside of their place of origin and coming from farming backgrounds.

Five qualified research assistants from the Department of Economics, University of Kelaniya, Sri Lanka were involved in the field work for this survey. Two of them are PhD holders and the others had completed Masters Degrees. All of them were educated about the purpose of the survey and thus were given training on the survey and the questionnaire. However, due to the EPZ restrictions, research assistants were not allowed to enter factories. Therefore, I had to complete all the interviews⁶⁵ inside the EPZs alone. All the interviews were carried out using the local language⁶⁶. Consequently, the accuracy of data collection was very high.

4.3.2 Analytical Framework

The remittance data in this survey consists of both positive and zero values as usual, as migrants who remit and who do not remit were included in the sample. Hence, employing OLS regression analysis for estimating the factors affecting remittances may be inconsistent and biased due to the restrictions (censored data) of the

⁶⁴ Each worker gets 15-30 minutes as a lunch break, depending on the factory. Respondents were not happy to spend that time completing interviews. In a very few factories, I was able to talk to a very limited number of respondents at lunch time.

⁶⁵ More than 50 per cent of the questionnaires were completed inside the EPZ in Katunayaka.

⁶⁶ In this case, Sinhala

dependent variable (the remitted amount). Tobin (1958) developed the Tobit regression model to overcome problems due to the nature of this type of data (censored regression). Therefore, a Tobit regression model was applied to the censored remittance data of the migrant workers to identify the determinants of internal remittances in Sri Lanka. Tobit estimations have the limitation of making the signs of both the determinants of remittances and the magnitude of the remittances the same. Therefore, a probit model was also employed to examine the decision to remit (Brown, 1997). Consequently, probit estimations provided the factors influencing the decision to remit while Tobit estimates provided the simultaneous decisions of whether to remit or not and how much to remit. Stata software was used to analyse the results of these models.

4.3.2.1 Tobit regression model

Banerjee (1984) added a new approach to migration literature as the first investigator who used remittance data in a Tobit regression. The standard Tobit model assumes a linear model for a latent variable and a censoring nature which places the remittance values equal to the latent variable if it is non-negative and to zero otherwise.

The Tobit equation can be written as follows:

$$R_i^* = X_i\beta + u_i \dots \dots \dots (4.1)$$

We assume $\tau=0$, as the remittance data are censored at zero. Hence we have

$R_i = R^*$ if $R^* > 0$ for migrants who remit

$R_i = 0$ if $R^* = 0$ for migrants who do not remit

R represents the amount of remittances sent to the place of origin by each migrant worker. R^* is the corresponding latent variable that observes values greater than zero and is censored otherwise. X denotes a variety of explanatory variables including migrant characteristics, migrants' family information and regional dummies, and β is the expected coefficient for the explanatory variables. u is a normal error term.

4.3.2.2 Probit regression model

The Probit model is estimated as follows;

$$R_i = \beta X_i + u \dots \dots \dots (4.2)$$

where R_i denotes the decision to remit or not, of each of the migrants (4.1), X_i is a matrix of covariates which are supposed to determine remittances (K x 1 regressor vector), β is a vector of parameters to be estimated and ε_i is the error term, which is assumed to be normally distributed. Binary variable R_i can be defined as follows:

$R_i = 1$ if regular remittances received are positive

$R_i = 0$ otherwise

4.3.2.3 Ordinary Least Square (OLS) regression model

The standard OLS regression model is as follows,

$$Y_i = \alpha + \beta X_i + u \dots \dots \dots (4.3)$$

Y_i represents annual remittance in one model and regular⁶⁷ remittance in the other model. X_i denotes a variety of explanatory variables including migrant characteristics, migrants' family information, regional dummies, etc. β is the expected coefficient for the explanatory variables and α is the constant. u is a normal error term.

4.3.2.4 Mincerian earning equation

The Mincerian earning function is used to estimate the income differences between the rural sector (before migration) and the urban sector (after migration) due to education and experience.

$$\ln Y_{ij} = \alpha + \beta_1 S_i + \beta_2 Exp_{ij} + \beta_3 Exp_{ij}^2 + u_i \dots \dots \dots (4.4)$$

$\ln Y_{ij}$ = Natural log of monthly income of the migrant worker i in sector j

S_i = Number of years of schooling of the migrant worker i

Exp_{ij} = Actual work experience of the migrant in sector j

Exp_{ij}^2 = Actual work experience squared of the migrant in sector j

u = error term.

⁶⁷ Regular remittance consists of either monthly remittance or once every three months as regular remittances.

4.3.2.5 The Chow test

The Chow test is a statistical test which can be used to examine whether the coefficients of two linear regressions on two different data sets are equal or whether the independent variables have different impacts on different subgroups of the population (AZAM, 2014). Here, I used Chow's seminal test (Chow, 1960) to examine whether there were differences in the coefficients of the determinants of income in rural and urban sectors in Sri Lanka. Income data has been used as sub-groups of the rural sector (before migration) and urban sector (after migration) for the Chow test to examine whether sub-group regression coefficients differ significantly.

The main restriction of the Chow test is the assumption of equality of error variance in two linear regression equations (Chow, 1960). This is observed using two regression models for rural and urban sectors.

$$y_i = \alpha + \sum_{k=1}^k \beta_k X_{ik} + \sum_{n=1}^n \beta_n (X_{in} * u_i) + \varepsilon_i \dots \dots \dots (4.5)$$

where β_k are the parameters to be estimated, X_{ik} are the explanatory variables and the expression $(X_{in} * u)$ indicates interactions of the explanatory variables, which test the effect of independent variables on income with the rural dummy. These interaction variables test whether the effects of the explanatory variables on earnings differ with location. Further, I separately estimated urban and rural income equations and conducted a Chow test to check for parameter differences among these two groups (Zosa & Orbeta Jr, 2009).

$$Y_i = \sum \beta X_i + u \dots \dots \dots (4.6)$$

$$Y_2 = \sum \beta X_i + u \dots \dots \dots (4.7)$$

The hypothesis in the Chow test is that the coefficients are equal for both sub-samples of rural and urban earnings⁶⁸.

$$H_0 : \beta_r - \beta_u = 0 \dots \dots \dots (4.8) :$$

β_r - Coefficients of the rural sector income determinants

β_u - Coefficients of the urban sector income determinants

Accordingly, I hypothesized that the coefficients of education and experience are the same for both rural and urban income earners.

⁶⁸ The null hypothesis of the Chow test is $a_1=a_2$, $b_1=b_2$ and $c_1= c_2$

4.4 Results and discussions

4.4.1 Descriptive statistics

The survey information included individual information such as migration behaviour, work history, remittance patterns, future plans and family information, and was conducted at the place of origin.

Table 4-1: Migrant workers' individual and family characteristics

Variable	Percentage /mean	n
Individual Characteristics		
Age	25.7	377
Marital status		
Unmarried	71.90%	271
Married	26.50%	100
Separate/divorced/widowed	1.60%	6
Relationship with head of the household		
Head	9.30%	35
Spouse	18.80%	71
Children	71.90%	271
Education level		
Primary	7.10%	27
O/L*	48.80%	184
A/L**	29.20%	110
A/L+	14.60%	55
No schooling	0.30%	1
Gender		
Male	24.10%	91
Female	75.90%	286
Work history-Job before migration		
No Job	62.10%	234
Government/semi government	0.80%	3
Private sector	8.80%	33
Farming	19.60%	74

Non-farm	3.70%	14
Other jobs	5.00%	19
Work history-Experience		
Experience before migration	2 .0 years	-1.5
Experience in factory jobs	4.7 years	-3.5
Type of job in the factory		
Machine operator	44.00%	166
Junior technician	21.80%	82
Supervisor	2.10%	8
Quality checker	14.60%	55
Helper	5.30%	20
Other	30.00%	113
Way of finding urban jobs		
Advertisement	9.30%	35
Relatives	44.70%	168
Migrant network	30.90%	116
Other	15.70%	57
Family Characteristics***		
Household size	4.4	-1.3
Number of students	0.6	-0.8
Number of members under 16 years old	0.5	-0.7
Number of members over 60 years old	0.3	-0.6
Number of male labour	1.7	-0.8
Number of female labour	2.1	-0.7
Highest education obtained by the household members		
Primary and below	3.70%	14
O/L	50.00%	188
A/L	40.40%	152
Degree/Diploma	5.80%	22
Assets		
Owning farmland or paddy land	92%	347
Farm land (acres)	1.2	-1.8
Paddy land (acres)	1.7	-1.9
Total observations	-	377

Source: Field Survey conducted by the author in 2011

Note: Standard deviations are in parentheses

*** Family characteristics include those of migrant workers too

* Completed ten years of education

** Completed 12 years of education

Descriptive statistics from the survey show (Table 4-1) that average age of the respondents was 25.7 years and 71.9 per cent were unmarried. More than 92 per cent of the respondents had completed ten years of schooling or more. More than 3/4 of the respondents were female. Sixty-two per cent of the respondents did not have employment before migration and 20 per cent were employed in farming activities.

Table 4-2: Migrant workers' remittance behaviour

	Percentage	n
Frequency of remittances		
Monthly	67.1	253
Once in two months	2.9	11
Once in three months	10.1	38
Twice a year	1.3	5
Occasionally	15.9	60
Never	2.7	11
Purpose of remittances		
Day to day expenses	31.0	117
Education of household members	11.1	42
Farm work	17.2	65
Durables and savings ⁶⁹	15.5	57
Loan repayments and housing	14.2	52
Other	11.7	44
Total observations		377

Source: Author's calculations using the field survey data

Table 4-2 indicates the frequencies of remittance and the purpose of sending remittances to the household of origin. Of the respondents, 67.1 per cent remitted

⁶⁹ It was unable to separate these two items as some of the questionnaires it was not clearly taken the difference of durables and investment goods. Thus I put these two together. Ex: furniture's, washing machine, TV, Kitchen items such as stoves, are taken as durables and also some questionnaires included tractors, cars, machines used in agricultural activities as durables and some as investment goods.

monthly while nearly 80 per cent of the respondents remitted on a regular basis⁷⁰. Thirty-one per cent of the remittances were sent to assist with the daily expenses. Although the highest percentages of remittances were sent for consumptive purposes, nearly 30 per cent of remittances are used for investment purposes for education and farm work.

4.4.2 Education of the respondents

Interestingly, Sri Lankan local migrants are relatively highly educated compared to the rural-to-urban migrants in most other developing countries. Specifically, 80 per cent of the respondents in this study had completed ten to twelve years of school education.⁷¹ Nearly 15 per cent of the respondents had more than twelve years of education. The majority of this 15 per cent of respondents were undergraduates (external/distance learning) while employed. Only 7 per cent of the respondents had received only primary education (Table 4-1). This situation is quite different from that of many other developing countries as shown in internal migration literature. The majority of the population in Sri Lanka has been able to obtain a good education due to the free education system. However, the mismatch between the education system and labour market requirements has created relatively high unemployment among the educated⁷² in Sri Lanka.

⁷⁰ 'Regular' means respondents remit either once every two months or once every three months, on an ongoing basis.

⁷¹ According to Table 4-1 nearly 50 per cent of the respondents had completed O/L and 30 per cent of the respondents had completed A/L exams. O/L indicates completion of ten years of education and A/L represents twelve years of education in the Sri Lankan education system.

⁷² Had a minimum of 10 years of schooling

4.4.3 Motivation for rural-urban migration

The motives for migration are overwhelmingly economic irrespective of the context. Both skilled and unskilled migrants participate in the migration process not merely as an individual decision but, more typically, as part of a household decision. Table 4-3 indicates that unemployment in the rural sector leads a majority to migrate to the urban sector and the members of economically fragile households tend to migrate as it is the only possible way to overcome economic hardships. Accordingly, more than 70 per cent of the respondents migrated to obtain urban employment due to economic reasons. Respondents mentioned that although they preferred to have a good education, economic hardships in their families compelled them to take factory jobs. Further, the nature of seasonal unemployment and underemployment in the rural sector could be identified under ‘other’ reasons for migration.

Although some of the migrants are willing to engage in farming activities and live in the rural sector, landlessness, capital constraints, limited market access, inconsistency of income and yield are the obstacles which force them into the rural-urban migration process. The most significant motivation for rural-to-urban migration in Sri Lanka is better employment opportunities, with higher wages and better educational opportunities in comparison to the rural sector. This is a common motive for rural-to-urban migration in many developing economies. Zohry (2009) confirms this idea, offering similar reasons such as declining economic opportunities in rural areas, increasing numbers of landless households, increasing fragmentation of land-holdings due to inheritance, low levels of wages, scarcity of services and other social amenities

for internal migration in Egypt. Further, better educational opportunities in the urban sector inspire those migrants who are willing to continue with their education while working. Table 4-3 shows 8 per cent of respondents migrated for educational purposes, while the majority migrated to find a job.

Table 4-3: Reasons for the first-time labour migration to urban sector

Reason for first migration	Male	%	Female	%	Total	%
Education/training-related	15	16.67	15	5.28	30	8.02
Unemployment	43	47.78	135	47.54	178	47.59
Expectation of high salary	7	7.78	16	5.63	23	6.15
Marriage	2	2.22	3	1.06	5	1.34
Migration with family	0	0	1	0.35	1	0.27
To be independent	2	2.22	8	2.82	10	2.67
To shift from farm work	7	7.78	25	8.8	32	8.56
Economic problem(s) of family	14	15.56	77	27.11	32	24.33
Other	0	0	4	1.41	4	1.07
Total	90	100	284	100	374	100

Source: Authors' field survey data 2011

4.4.4 Future plans of the respondents

Table 4-4 demonstrates the respondents' future plans. Of the total number of respondents, 32.5 per cent stated that they needed to continue in the same job as they needed to obtain Employees' Trust Fund (ETF) money by completing five years in that service. What this means is that they need to work until they get married, because more than two thirds of the respondents were unmarried females. However, several studies on migration in developing countries have indicated that migration is

dominated by unmarried males (Campbell, 2010; De Haan, 1999b) while Zohry (2009) concluded in his study on rural-to-urban migration in Egypt that there are more male migrants than females and more young than old. However, his sample represents different segments of the population in Egypt.

Young female migrants are leading the internal labour migration process in Sri Lanka due to the huge demand that has been generated for female labour in certain services and manufacturing industries. Accordingly, migrants' characteristics depend on the structure of the economy and migrants are not exact representations of the different population groups in the economy.

Table 4-4: Future plans of migrants

Future Plan	Male	%	Female	%	Total	%
Go abroad	8	9.09	14	4.93	22	5.91
Do a different job	5	5.68	15	5.28	20	5.38
Continue the same job	29	32.95	92	32.39	121	32.53
Go back to village & do farming	19	21.59	27	9.51	46	12.37
Go back to village & do non-farm job	11	12.50	48	16.90	59	15.86
Start a business in the city	9	10.23	15	5.28	24	6.45
No idea	2	2.27	23	8.10	25	6.72
Other	5	5.68	50	17.61	55	14.78
Total	88	100.0	284	100.0	372	100.0

Source: Field survey data 2011

Twenty-eight per cent of the respondents stated that they needed to go back to their villages and do some farming or non-farming activities after accumulating the basic capital for these activities. This indicates that rural-urban migration has a

considerable economic impact on the sending communities/ destinations. The majority of the females under the category of “other” said that they planned to get married. Some studies (DeWind & Holdaway, 2008) indicate that internal migration leads to international migration. They further indicated that a significant number of rural-to-urban migrants who migrated to the largest cities in developing countries, spilled over into international migration. Rural-to-urban migrants in Sri Lanka have shown comparatively little interest in international migration. In contrast, there was a considerable number of return migrants⁷³ among the respondents.

4.4.5 Work experience of the respondents

Although nearly half of the respondents had completed ten years of education, 62 per cent of the respondents did not have any work experience before migration. The majority of them were school leavers.⁷⁴ The average work experience of the respondents before migration was two years and the average work experience in firms after migration was nearly 5 years. A majority of the respondents reported that they had joined factories as unskilled workers and then accumulated experience and became skilled workers. At present, the majority of the respondents are gaining some kind of skills as machine operators, technicians or embroiderers. This is a positive by-product of internal migration as they can use these skills to get promotions or transfers to a better job locally or internationally using the skills and money they accumulated through rural-urban migration.

⁷³ Here, I consider those who had migrated internationally for a job, stayed for several years and returned home as return migrants

⁷⁴ Nearly 49 per cent of the respondents had completed ten years of school education (Table 4-1).

Discussing the ways in which they found urban jobs, 30 per cent of the respondents found jobs through migrant networks and 45 per cent of migrants obtained urban jobs through relatives who worked in the factories and/or lived in cities. In my interviews with managers, a new trend of recruiting employees was identified as a solution to the decreasing labour supply in the factories in EPZs. Management staff from the factories visit selected villages and motivate people to migrate to urban jobs in these factories by promising to provide free meals and accommodation for three months from the date of commencement of the job.

The impact of migration on household size and composition is very significant to the household economy. According to Gibson et al. (2009) the immediate effect of migration, that is, “fewer mouths to feed” has a greater impact on household economy in poor families. The average household size⁷⁵ of the place of origin of the respondents in the present study was 4.4 persons and it is estimated that the household size reduces by 1.4 people due to migration (Table 4-1). The average number of students in these families was very low. Importantly, a higher proportion of female labour was seen in these migrant households compared to male labour, and the average educational level of these households was higher; 94 per cent had completed ten years of schooling on average. As migrants were being drawn from farming households, 92 per cent of the migrant households had their own arable lands. However, the average arable land area was less than two acres⁷⁶. The cost of migration is considered to be higher for Sri Lankan married females than for

⁷⁵ Household size includes the respondents of the survey.

⁷⁶ 1 Hectare = 2.47105381 Acres

unmarried female migrants, because married females have a higher social cost associating with leaving their children, husbands, parents and household duties. Hence, the benefits for unmarried female migrants are higher than those for married female migrants, as shown by the relatively small number of married females in the sample.

4.4.6 Comparative income gains through rural-to-urban migration in Sri Lanka

The economic factors of rural-urban migration play a significant role in the process of economic development in many developing countries, transforming unskilled rural labour to skilled labour in the manufacturing sectors in urban cities. Lee (1966) explains that recognition of the importance of internal migration in the social and economic development of a country encourages productive and systematic research which will add data and detailed information on migration. Although migration and remittances have been identified as the main factors reducing poverty in Sri Lanka over the last few decades,⁷⁷ the economic impact of rural-to-urban migration and urban-to-rural remittance flows is not clear. Further, it is still unclear whether shifting agricultural labour from rural farm communities to urban manufacturing sectors is actually rewarding.

The expected income gain is the most important motivation for both internal and international migration (Ha et al., 2009). The present study examines how much income gain can be achieved through rural-to-urban migration in Sri Lanka. Two

⁷⁷ Refer to the results and discussion in Chapter 3.

types of data are used to proxy for the income variable (dependent variable) due to the lack of continuous income data for migrant workers. The survey collected interval income data with the purpose of obtaining more reliable data. Thus, this analysis used midpoint average income data for one model and imputed income data generated by interval regression estimates for the other model. First, the OLS regression model is used to obtain income gains as follows;

$$Y_i = \alpha + \beta_i X_i + \varepsilon \dots\dots\dots(4.9)$$

Where Y_i denotes the urban rural income differences of the migrant workers, X_i denotes the covariates of education, work experience etc. β_i is the coefficients of the covariates. Here, α is the parameter of interest, which this study considers for income gains from working in urban factories controlling the above covariates, following Tan and Gibson's work related to international migration and remittances (Tan, 2011; Tan & Gibson, 2010). ε_i is an error term. Three types of income differences were examined for the income gains of rural-to-urban migrant workers, considering the difference between current wages of the migrants and their rural income before migration. First, I examined the income differences between all the respondents. Next, the same was done with respect to the respondents who worked prior to migration and the thirdly respondents who shifted from rural farming jobs.

Table 4-5 specifies the mean and median monthly income gained by each of the groups of migrants. The average monthly income of all the respondents earned in urban factories was about 12,500 to 15,298 Sri Lankan rupees; more than twice what they earned in farming jobs or other jobs in the rural sector before migration. With respect to China, researchers have pointed out that migrants' urban income in China

is more than three times higher than the rural farm income they earned before migration (Ha et al., 2009).

Table 4-5: Monthly incomes in mean and median rupees

Income groups	Mean	Median
Actual urban income for all respondents (n=377)		
Mid-point average income earned in factory job	15,298	12,500
Imputed** income in factory work	15,180	14,101
Actual rural income for all respondents who - worked before migration (n=143)		
Mid-point average income earned in first job in village	6,641	5,000
Imputed income in first job in village	7,279	7,016
Actual rural income for all respondents who were employed in farm work before migration (n=74)		
Mid-point average income earned in farm job	5,978	5,000
Imputed income in farm job	7,439	7,303

Source: Author's calculations using field survey data

*** Note: Income data has been collected in the form of intervals. Using left and right censored points of each interval, imputed values were calculated from STATA using INTREG*

Further, the present analysis attempted to calculate the accumulated monthly income of three groups; (1) all respondents, (2) respondents who worked before migration and, (3) migrants who worked on farms before migration. The overall result shows (Table 4-6) that raw income from rural-to-urban migration varied between 3,672 and 12,978 rupees per month. Presumably, some of the characteristics introduced as controls, such as type of experience and education are highly rewarding in terms of urban income gain. In Table 4.5, the most varied average income can be seen in the

farming workers group compared to the other two groups. Thus, it is clear that the control factors significantly influence rural farm workers' incomes in urban.

Table 4-6: Monthly income gains from rural-to-urban migration

Change in the level of monthly income (Rupees)	All respondents	Workers employed before migration	Farm workers
Change using midpoint average			
Without covariates	12,978 (338.98)	9,843 (604.29)	11,993 (856.43)
Controlling for work experience	11,312 (552.06)	6,441 (1,265.35)	8,010 (1,492.82)
Controlling for education	6,650 (1,903.78)	2,929 (4,146.56)	3,924 (5,007.63)
Controlling for education, work experience, marital status and gender	3,672 (2020.85)	1,417 (4176.06)	827 (4489.53)
Change in the log monthly income			
Without covariates	9.5 (0.02)	9.6 (0.03)	9.7 (0.04)
Controlling for work experience	9.4 (0.03)	9.4 (0.06)	9.5 (0.08)
Controlling for education	9.1 (0.09)	9.2 (0.16)	9.3 (0.19)
Controlling for education, work experience, marital status and gender	8.9 (0.09)	9 (0.14)	9.1 (0.18)
Using imputed Income			
Without covariates	8,057 (126.22)	8,884 (219.94)	9,424 (313.76)
Controlling for work experience	6,319 (163.98)	6,851 (311.69)	7,656 (483.17)
Controlling for education	3,235 (1362.75)	2,029 (1220.23)	1,781 (1298.56)
Controlling for education, work experience, marital status and gender	1,474 (820.66)	308 (582.57)	1,083 (599.58)
Change in the log monthly income			
Without covariates	8.95 (0.01)	9.04 (0.02)	9.1 (0.04)
Controlling for work experience	8.7 (0.02)	8.82 (0.04)	8.9 (0.06)
Controlling for education	8.3 (0.15)	8.29 (0.14)	8.28 (0.15)
Controlling for education, work experience, marital status and gender	8.1 (0.09)	8.09 (0.07)	8.19 (0.07)
No. of observations	376	142	73

Source: Author's calculations using field data

Note: Standard errors are in parentheses

Gender includes male =1, marital status includes single =1

In conclusion, rural-to-urban migrant workers earn almost an additional Rs. 5,000 to Rs. 15,298 (nearly USD 45 to USD 140)⁷⁸ per month compared to their rural income before migration. The respondents who shifted from farm jobs to factories had the highest income gain from rural-to-urban labour migration in Sri Lanka. Their income gain varied between nearly 1000 rupees to 12 000 rupees (nearly 10 USD to 120 USD) per month. The log income estimates indicate that the earnings of rural farm workers through rural-to-urban migration are about 8.9 to 9.7 times higher than rural sector earnings.

4.4.7 Determinants of migrants' earnings:

Human capital theory indicates that there are several factors which determine the level of earnings for individuals. According to Mincer (1958), the most rewarded elements in this context are the level of education and labour market experience. The present study attempted to identify whether these attributes are common to rural-to-urban migrants in Sri Lanka as well.

Calculating the income gains from migration (Table 4-6) shows a significant difference with controlling factors (age, experience and education) which affect the monthly income of migrants. Hence, it is important to determine which factors affect migrants' urban income compared to the rural income gain. A series of alternative specifications on migrants' earning functions were fitted to the data in an attempt to examine the individuals'/respondents' monthly income gain.

⁷⁸ 1 USD was equal to Rs. 109 during the survey period of January to April, 2011.

$$\ln Y_i = \alpha + \beta_1 S_i + \beta_2 \text{Gender} + \beta_3 \text{Exp} + \beta_4 \text{Exp}^2 + u_i \dots \dots \dots (4.10)$$

$\ln Y_i$ = Natural log of monthly earnings of the i^{th} individual

S_i = Years of education of the i^{th} individual

Gender= Dummy variable having a value of 1 if the individual is male and 0 otherwise

Exp= Number of years of working experience (farm/firm).

Exp^2 = Working experience squared

Further, marital status and an interaction dummy for “education x male” were added.

Two alternative measures of years of experience were used separately.

1. Labour market experience, defined as a human capital function as years of schooling and a further 6 years deducted from the present age (exp=age -year of schooling -6) (Mincer, 1958).
2. Total years of actual work experience.

This study examined what would be the total income gains for one migrant worker who moved from their village (or farm) to a factory job. Not knowing anything about the respondents, first I estimated that the income gain was around Rs. 8,000.00. Once their characteristics are known, controlling for those, the gain reduces to Rs. 4,000.00. Presumably, some characteristics are more highly rewarding in urban sector earnings than in the rural setting, or else workers in the urban sector have systematic differences in characteristics compared with workers in the rural sector.

Table 4-7 shows that education and experience are highly rewarded in urban sector employment compared to rural sector employment that was engaged in before

migration. Results indicate that the return on education in the rural sector is negative and significant. It may be that educated people work fewer hours while studying further or work temporarily until they get a better job or it may be due to an income computation problem. Although earnings are seasonal in agriculture, the wages calculated here are as monthly income. Male migrants are better paid than females in both sectors and also larger coefficients indicate that the urban sector pays more (as noted above in the unconditional comparisons in Table 4-6).

The Chow test determines whether the coefficients estimated over one group of the data are equal to those of the other group. Here it was tested whether the coefficients of the income equation for the rural sector differed from the coefficients for the urban sector. Chow test indicates whether the independent variables (covariates of the regression or the factors affecting wages) have different impacts on rural and urban workers. Thus, the Chow test results indicate that the coefficients are the same for the rural and urban groups.

Table 4-7: Determinants of migrants' rural and urban earnings in Sri Lanka

Determinants	Log urban income (after migration)				Log Rural income (before migration)			
	Midpoint average income		Imputed income ⁷⁹		Midpoint average income		Imputed income	
	Model1	Model2	Model1	Model2	Model1	Model2	Model1	Model2
No of years schooling	0.024 (3.10)**	0.018 (2.83)**	0.018 (5.47)**	0.027 (6.01)**	-0.018 (0.71)	-0.029 (1.11)	-0.015 (10.45)**	-0.012 (5.58)**
Life Experience	0.016 (2.82)**			0.013 (3.96)**		-0.020 (1.10)		0.001 (0.97)
Life Experience squared	-0.000 (1.75)			-0.000 (0.98)		0.001 (1.14)		-0.000 (1.11)
Gender (Sex=1)	0.242 (6.22)**	0.248 (6.77)**	0.297 (66.00)**	0.289 (32.14)**	0.098 (1.32)	0.124 (1.61)	0.144 (44.05)**	0.138 (39.47)**
Marital (single)	0.015 (0.40)	0.013 (0.35)	-0.005 (1.11)	0.003 (0.26)	-0.043 (0.52)	-0.078 (0.77)	0.005 (1.57)	0.004 (1.12)
Urban experience		0.048 (4.09)**	0.024 (13.24)**					
Urban experience squared		-0.002 (2.27)*	-0.000 (0.66)					
Rural experience					0.040 (0.44)		-0.000 (0.10)	
Rural experience squared					-0.002 (0.16)		-0.000 (0.44)	
Constant	9.194 (92.03)**	9.202 (114.33)**	9.226 (224.78)**	9.146 (141.15)**	8.819 (28.30)**	9.144 (23.64)**	9.002 (530.87)**	8.960 (283.64)**
Observations	343	342	376	376	132	132	141	377
R-squared	0.21	0.25	0.94	0.84	0.04	0.04	0.93	0.86

Robust t statistics in parentheses

* significant at 5%; ** significant at 1%

*Source: Author's calculations using field survey data*⁷⁹ As income data was collected by intervals, interval regression and imputed continuous data were used for both rural and urban income

4.4.8 Determinants of remittances

Worker remittances play a very important part in the portfolio of income sources in many households in developing countries such as Sri Lanka. Chapter 3 indicated that remittances have been one of the main factors reducing poverty in Sri Lanka over the last two decades. Hence, it is important to examine the determinants of remittance for better understanding of the implications of rural-to-urban migration.

Determinants of rural-to-urban migration and remittances vary and depend on the characteristics of the economy. The first attempt to elucidate the motivations for remittances was done by Lucas and Stark (1985) with a firm theoretical basis. They indicated two broad motives for remitting: altruism and self-interest. Nevertheless, these two motives are inadequate to explain variations in remittances, since very often migrants and their families in the place of origin benefit from migration through embedded contractual arrangements. Hence, motives can be taken as combined elements of altruism and self-interest such as insurance and loan repayments (Atamanov & Van den Berg, 2010). Further, they demonstrated that proximity of the migrant and the left-behind members of the family should influence the choice of remittances. As a close relationship strengthens the importance of households in the migrants' utility, remittances increase with proximity.

Although rural-to-urban migration leads to significant economic gains, remittances are the most tangible direct impact of migration. This study employed Tobit, probit and OLS regression models to analyse the survey data to investigate what factors

influence the decision to remit. As not all migrants remit to the left-behinds in the place of origin, the data are subject to a potential truncation problem. Tobit regression works well in addressing censored or truncated data. Nevertheless, Tobit estimations have the limitation of forcing both the determinants of remittances and the magnitude of the remittance to have the same effect (Brown, 1997). Consequently, this analysis employed a probit model specifically to analyse the determinants of the purpose of remitting. Hence, probit estimation provides the factors that influence the decision to remit while Tobit estimation provides the simultaneous decisions of whether to remit or not and how much to remit. The robustness of the results has been tested. OLS regression is also used to compare with the results obtained using other estimators.

Table 4-8 indicates the results of Tobit and OLS analysis regarding factors affecting the decision to remit. The results confirm that altruistic remittances depend positively on migrants' monthly income and negatively on household farm income⁸⁰ considering both regular and annual remittances. Altruism implies that the migrant derives utility from his/her consumption and the consumption of the household of origin. The annual bonus of the respondents is a highly significant and positive determinant of remittances (Table 4-8). Most of the respondents indicated that they used these extra earnings for housing purposes, buying durables, or savings. *Seettu* also has a significant positive impact on determining annual remittance as usually they receive a lump sum of money once a year. Unmarried respondents are more likely to remit regularly. Households with more students are more likely to receive regular remittances. Considering the amount of annual remittances, it is clear that the

⁸⁰ Farmland ownership has been included as a proxy for household income as income data is not reliable.

savings of the migrants and the annual remittances sent back home are positively correlated, because migrants send money to households for the purpose of savings.

Table 4-8: Determinants of rural-to-urban worker remittance: OLS and Tobit Results

Determinants	Tobit		OLS	
	Regular remittance ¹	Annual remittance ²	Regular remittance ¹	Annual remittance ²
Average salary	0.174 (3.95)**	1.126 (1.99)*	0.163 (2.49)*	1.142 (2.00)*
Savings	-0.048 (0.75)	4.022 (4.95)**	-0.034 (0.44)	3.985 (2.07)*
<i>Seettu</i> ⁸¹	-0.049 (0.39)	2.959 (1.87)	-0.013 (0.13)	2.823 (2.01)*
Age2	-0.001 (0.38)	-0.032 (0.88)	-0.000 (0.02)	-0.027 (0.89)
Age	0.081 (0.40)	2.396 (0.93)	-0.007 (0.03)	1.979 (0.97)
Gender(male =1)	0.511 (0.93)	12.440 (1.77)	0.470 (1.11)	12.285 (1.78)
Education (No of years)	-0.274 (2.48)*	0.368 (0.26)	-0.224 (2.39)*	0.417 (0.24)
Total land owned by family	-0.313 (4.12)**	-2.538 (2.71)**	-0.223 (3.96)**	-2.545 (2.88)**
Bonus	0.150 (4.37)**	1.164 (2.60)**	0.129 (1.96)	1.146 (1.75)
No of students of family	1.064 (4.22)**	2.749 (0.84)	0.890 (4.00)**	2.507 (0.86)
Experience	0.089 (1.08)	0.479 (0.45)	0.110 (1.65)	0.575 (0.50)
Marital(single=1)	1.497 (2.93)**	0.521 (0.08)	1.013 (2.51)*	-0.354 (0.05)
In-kind received	-0.209 (1.25)	-4.531 (2.15)*	-0.160 (1.26)	-4.087 (1.98)*
Constant	0.253 (0.08)	-22.667 (0.53)	1.972 (0.78)	-16.024 (0.45)
Observations	357	357	357	357
R-squared			0.23	0.19

Source: Author's calculations using field survey data

* significant at 5%; ** significant at 1%. Robust t statistics in parentheses

Absolute value of t statistics in parentheses

Note: 1. Regular remittance consider monthly or three-monthly regular remittances in 1000 rupees.
2. Annual remittances include in-kind (1000 rupees) sent by the migrants.

⁸¹ *Seettu* is an informal financial program among workers. A few people get together and organize to collect some fixed amount from all the group members. One member one will be entitled to have the lump sum on any given occasion. Turns are decided by a raffle.

Education has a negative impact on the decision to remit and on the amount of the remittances. It was identified that respondents with higher education worked to earn for their own education expenses. Hence, they would not be able to remit for the left-behind members of the household.

Most researchers have attempted to estimate only the impact of remittances and in-kind flows to migrant-sending communities. However, in-kind flows (mostly in-kind but rarely money) also occur from the sending communities to the working destinations of the migrants. The present study examines, for the first time in the migration literature for Sri Lanka, whether in-kind flows from the households of origin to the migrant workers have a significant impact. According to the results, although the in-kind variable shows a negative and insignificant impact regarding regular remittance decision, there is a significant negative relationship between the decision to remit annually and receiving of in-kind, because migrants do not receive in-kind monthly, but just a few times a year. However, rural-to-urban in-kind flows are also an important factor which determines the annual remittances in rural-to-urban labour migration in Sri Lanka.

4.4.9 Usage of internal remittances in rural farm communities

The effects of rural-to-urban migration on the development of rural communities (migrant-sending areas) can be examined through the usage of remittances by the households of origin. The present study examines the determinants of the usage of remittances using probit regression. I disaggregated the remittance data according to

the purpose of the remittances, such as household daily expenditure, education of household members, spending on farming activities and spending on durables and housing (Table 4-9). Most other studies show that more than half of remittances are used for consumptive purposes (De Brauw & Rozelle, 2008; Zhang, 2010). This is a common phenomenon of migration in developing countries. Nevertheless, a considerable proportion (nearly one third of the remittances in the current study), go for productive investment which can generate multiplier effects in terms of income and employment. They have been identified here as education and farming. Specifically, the higher the number of students in the family, the higher the remittances received for the purpose of education. Households with more farm lands are more likely to receive remittances for the purpose of farming.

The probit analysis results reveal that making annual remittances decreases significantly as migrants' stay in the city becomes longer. At the beginning of the migration process, more remittances will be received and over time, as they shift to other channels of income, the remittances they receive decline. For example, some respondents indicated that they do not remit regularly now compared to previous years as there are other family members to support the family or they have made other sources of income by investing the remittances. For example, some respondents' families have started small shops at the place of origin or bought vehicles for hiring. The probit results also confirm that the variable of in-kind flows to the urban sector have a significant positive impact on remit decision-making (Table 4-9). Therefore, an in-kind flow to the urban sector is also a considerable factor in determining the remittances. Almost 80 per cent of the migrant workers who

received in-kind remittances were female migrants because male migrants do not tend to cook at boarding places and they buy food from outside when and where necessary. The respondents reported that in-kind transfers comprised mostly raw foods such as rice, vegetables and coconuts, with some cooked food items as well. The types of in-kind transfers depend on what sort of crops are cultivated at the place of origin, while the frequency of receiving in-kinds depends on the frequency of the migrant visiting their place of origin or the number of visits by household members to the city.

Although unmarried respondents are more likely to remit, this variable shows a negative impact on the purpose of remittance for daily expenses. The higher the number of students in the household lower the remittances for daily expenses, but the higher the remittances for education purposes. There is no significant impact of any of the determinants of remittances on the purposes of housing, durables and savings. The higher the age of the migrant, the more likely are the remittances to be for the purpose of education, because older people have their own children at home. Usually, when the extent of arable land owned by the household is greater than average, the likelihood of receiving remittances for consumption purposes will be

Table 4-9: Determinants of the usage of remittances in the place of origin

Determinants	Ever remit ¹	Daily expenses	Education	Farm work	Housing and durable	Loan repayment	Savings
Average salary	0.000 (0.84)	-0.001 (0.31)	0.003 (1.15)	0.001 (0.37)	0.004 (1.35)	-0.003 (1.37)	-0.004 (1.53)
Total land owned	-0.001 (2.04)*	-0.027 (2.65)**	0.005 (1.04)	0.016 (2.59)**	-0.005 (1.02)	-0.009 (2.25)*	-0.001 (0.10)
No of migrants	-0.004 (1.56)	-0.053 (1.29)	0.004 (0.18)	0.029 (0.97)	-0.032 (1.41)	0.019 (1.37)	-0.050 (1.87)
No of years of schooling	-0.003 (1.97)*	-0.004 (0.27)	-0.005 (0.57)	-0.012 (1.24)	0.019 (1.67)	-0.004 (0.93)	-0.005 (0.64)
Marital (single=1)	0.049 (3.72)**	-0.171 (2.77)**	0.052 (1.78)	-0.009 (0.20)	0.032 (0.93)	0.044 (1.80)	0.070 (1.94)
In-kind received	0.009 (1.98)*	-0.070 (1.38)	0.058 (1.91)	0.053 (1.35)	0.013 (0.46)	-0.026 (1.34)	0.053 (1.73)
Age	0.006 (3.78)**	0.005 (0.22)	0.028 (2.35)*	0.022 (0.96)	0.019 (0.91)	0.002 (0.26)	-0.007 (0.51)
Age ²	-0.000 (3.65)**	-0.000 (0.05)	-0.000 (1.92)	-0.000 (1.25)	-0.000 (1.29)	0.000 (0.06)	0.000 (0.44)
Number of years of experience	-0.001 (2.59)**	-0.010 (1.06)	-0.008 (1.40)	0.001 (0.08)	0.010 (1.46)	-0.006 (2.06)*	0.002 (0.34)
Number of students of family	0.004 (1.75)	-0.070 (2.11)*	0.077 (4.17)**	-0.004 (0.19)	-0.033 (1.44)	-0.006 (0.72)	0.027 (1.71)
Observations	373	373	373	373	373	373	373

Robust z statistics in parentheses * significant at 5%; ** significant at 1%

Note: the ever remit dummy variable considers annual remittances including in-kind sent by migrants. If the amount is positive the value is 1; otherwise zero.

lower. However, the likelihood of the same households receiving remittances for the purpose of farming activities is higher. This confirms that respondents are likely to remit for investment purposes as well as for consumptive purposes in Sri Lanka.

4.5 Conclusion

This chapter investigated the process of rural-to-urban migration, remittances and their impact on rural farm communities/sending communities using survey data gathered by the author from January to April 2011 in Gampaha District in Sri Lanka.

The analysis of the determinants of remittances indicated that unmarried migrants are more likely to remit regularly. Households with larger areas of farmlands are less likely to receive regular remittances for consumption purposes whereas they receive more remittances for farming purposes as an investment. Households with students are more likely to receive regular remittances for daily expenses. Migrants tend to remit for the purpose of education if there are students in the household of origin. This confirms that rural-to-urban migration and remittances are not only for consumptive purposes but also for investment purposes. None of the migrants remitted monthly for the purpose of buying durables or building houses as this may require large sums of money. However, they do remit for the purposes of buying those things annually when they get bonuses or *seettu*.

The proportion of remittances received from rural-to-urban migrants' accounts for 21 per cent of the income of households in the place of origin, on average. Moreover, rural-to-urban migration contributes significantly to asset accumulation (including

vehicles and land) in the communities of origin. Twenty-five per cent of the migrants have built new houses in their place of origin.

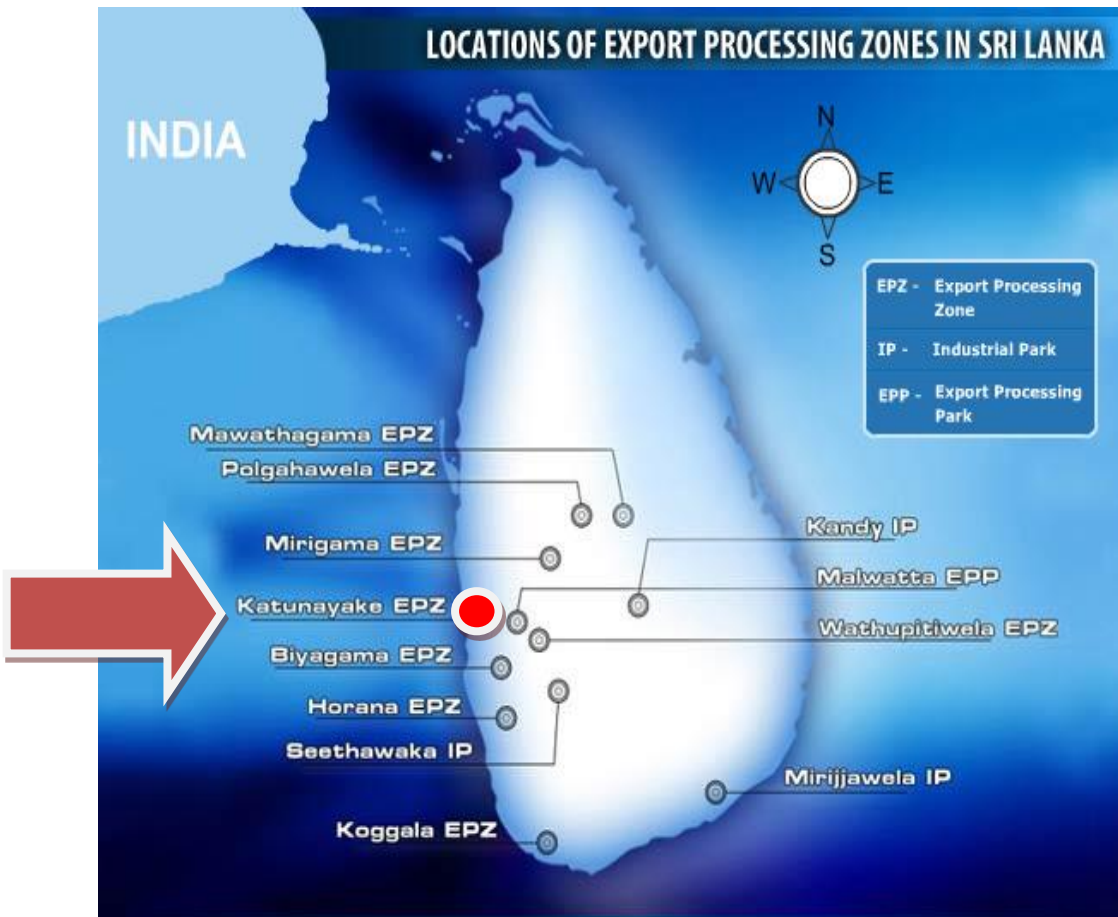
Individual migrants' income gain from migration varied between 4,000 and 9,000 rupees per month on average. Migrants who shift from agricultural sector jobs to factory jobs are the highest income gainers in rural-to-urban migration. Individual income gain in the urban sector is rewarded by level of education and work experience compared to the rural sector earnings.

Finally, the decision to remit depends on the purpose of using the remittance rather than the amount of wages or experience. Unmarried migrants are more likely to remit for daily expenses in their households of origin to support elderly people and/or parents who cannot work and do not have a proper income in the places of origin.

Based on the empirical literature and the findings of this study, it can be concluded that rural-to-urban temporary labour migration contributes significantly to poverty reduction by improving the well-being of rural farm communities. Although opportunities to enter the international migration process are limited due to unaffordability of the cost of migration, rural-to-urban migration is an alternative for any households with skilled or unskilled labour to make their way out of poverty. Hence, rural-to-urban migration is relatively more supportive in the long term as migrants can spend longer periods in their jobs than in international migration. Thus, rural-urban migration is a better solution to the problem of skilled labour leaving the country, which developing countries like Sri Lanka are facing today. It also lessens

the social consequences that migrant families face as, unlike international migrants, internal migrants can visit their families often.

Figure 4-3: Map of survey region



Source: http://www.boi.lk/free_trade_zones_industrial_parks.asp

Chapter 5: Impact of the agriculture trade liberalisation on household poverty: GTAP_POV analysis for Sri Lanka

5.1 *Introduction*

Critics of globalization commonly assert that globalization increases poverty, supporting this argument by discussing the proliferation of low-wage employment and higher food prices. Opponents of free trade believe that more open trade exacerbates poverty in developing economies and in agriculture in particular (Tutwiler & Straub, 2005, p. 1). In contrast, advocates of trade liberalization often argue that economy-wide gains from trade liberalization make people better off⁸² (Bharadwaj, 2014; Hertel, Ivanic, Preckel, & Cranfield, 2003, p. 1). Further, they believe that poor countries tend to grow faster as long as poor and rich countries are linked together by international trade (Jeffrey & Andrew, 1995). With agriculture at the heart of the WTO negotiations, there is a great deal of controversy surrounding the role that agricultural trade reforms can play in alleviating poverty.

Despite the unprecedented expansion of the world economy during the 1960s and 1970s, many economists were concerned that the benefits of growth did not reach the world's poor (Kakwani, 1993, p. 121). Due to the progress of China, the developing world as a whole has more recently seen enormous progress in reducing absolute poverty, while the developing world outside China shows slow progress in poverty reduction (Dollar, 2002; Kakwani, 1993; Ravallian, 2013).

⁸² It is expected to boost income of the rural poor in developing nations, as trade liberalization often emphasizes the ensuing rise in world prices for agricultural products as industrialized countries eliminate protection for farming in OECD countries in favour of poverty reduction (Hertel et al. 2003).

Although the links between trade and poverty are highly debatable and complex, many researchers, including trade and development economists and policy makers, believe that trade liberalization plays a vital role in poverty reduction in developing nations like Sri Lanka. It is imperative and timely to investigate such questions, to assess the benefits of trade liberalisation for the poor, particularly outside China. How far can poverty be reduced through agricultural trade liberalization, particularly among different income groups in developing countries? Computable General Equilibrium (CGE) modelling plays an important role as an analytical tool for exploring answers to these questions. The Global Trade Analysis Project (GTAP) model and database is used in a wide range of research into the impacts of policy changes, including examining impacts on poverty (Aguiar, Walmsley, & Carrico, 2014; Hertel & Reimer, 2004c; Hussein, Hertel, & Golub, 2013; Stone, Strutt, & Hertel, 2012). The growing literature indicates that the poverty impact of agricultural trade liberalization differs from country to country due to the unique characteristics of the countries and the importance of the country-specific studies. Therefore, the present study provides country-specific poverty calculations and modelling to explore whether the process of agricultural trade liberalization in particular is likely to reduce poverty in Sri Lanka.

The impact of trade liberalization on poverty can be examined through changes in the income distribution of households. We used the GTAP-POV model (Hertel, Verma, Ivanic, & Rios, 2011), to examine household poverty in a country by calculating the income changes for various income strata of households. In particular, poverty

elasticities can support analysis of income changes with regard to policy changes, such as trade reforms in a country (Hertel et al., 2011; Hertel & Reimer, 2005).

There have been several efforts to use CGE modelling to capture the impact of trade liberalization on poverty and income distribution in the Sri Lankan context (Narampanawa, 2005; Naranpanawa, Bandara, & Selvanathan, 2010; Perera et al., 2014; Weerahewa, 2006). Most notably, Naranpanawa (2005) examined income distribution and poverty at a household level within low income and high income groups in urban and rural sectors and low income groups in the estate sector through Social Accounting Matrices (SAM) in a Sri Lankan CGE model.

Policy changes will have varying consequences across different segments of the population. Thus, household stratification, using primary income sources and decomposing their factor earnings, will provide deeper understanding about the poverty impacts of a country's policy changes (Komoto & Stone, 2009). There is a growing literature to demonstrate that augmenting the GTAP model and database with household survey data can capture poverty impacts of policy reforms more precisely (Hertel et al., 2011; Hertel et al., 2009; Komoto & Stone, 2009; Stone et al., 2012; Strutt et al., 2010). Factor markets are a primary channel for trade policy to impact on poverty. Stratification of households using their primary source of income can provide a clear picture of the number of households that actually move out of poverty. This will support better understanding of poverty reduction in a developing country like Sri Lanka.

Chapter Three showed the poverty determinants and their behaviour in Sri Lanka over the last two decades. This chapter uses Sri Lanka's 2006/7 Household Income and Expenditure Survey (HIES) data, along with the GTAP version 8.1 database to model how many people in each income group may move out of poverty due to agricultural trade liberalization. (This analysis will help policy makers to identify which groups are most affected by particular policy changes or agricultural trade liberalization in Sri Lanka and which groups need more attention in terms of poverty reduction.) Sri Lanka is an interesting and special case study, as it was the first country to open its economy in the South Asian region, and has continued with trade liberalization over three decades, reducing national poverty tremendously during this time despite facing an alarming armed conflict during the same period.

There have been no efforts in the literature to date to apply a global CGE modelling framework for poverty analysis to the different income strata in Sri Lanka. Given these gaps in CGE analysis, policy makers face a lack of country-specific quantitative information to help them understand who is likely to be affected by agricultural trade liberalization and by how much. Therefore, this chapter aims to fill this gap, and provide the information which will support Sri Lankan policy makers and ensure that the benefits of agricultural trade liberalization are realized for people who are living in extreme poverty. The present study employs the GTAP-POV framework, applying poverty elasticities and associated data, calculated by the author using HIES data for the first time in the Sri Lankan context.

5.2 *Significance of the study*

The poverty headcount is a common and well-established measurement that has been used for measuring poverty impacts in many studies examining households at or below the poverty line (Bourguignon, 2003; Datt & Ravallion, 1992a; Komoto & Stone, 2009; Ravallion & Chen, 2003). The poverty headcount ratio shows the number of people below the poverty line, who represent the most vulnerable sector of the population⁸³ (UNDP, 2014). However, the number of people marginally above the poverty line is also important because those who are just above the poverty line can also be very vulnerable (Devas, 2004, p. 16). These people are at risk of slipping back into poverty and this segment of the population is highly vulnerable to economic shocks (United Nations, 2009). Thus, we need to find effective strategies to prevent this group from falling back into poverty, as well as to bring the current poor out of poverty. The GTAP poverty framework used in this study focuses on both of these population groups by taking 10 per cent⁸⁴ around the poverty line in Sri Lanka (Table 5.6).

The impacts of policy initiatives vary considerably among different groups depending on their source of income and their consumption patterns. Reconciliation of household income data with GTAP data is needed to help measure the impact of policy reforms on specific household types (Komoto & Stone, 2009). According to Hertel et al. (2007), stratification of households by source of income and

⁸³ According to the HDR 2014, despite recent progress in poverty reduction, more than 15 per cent of the world's population remains vulnerable to poverty.

⁸⁴ 5 per cent of the population above the poverty line and 5 per cent of the population below the poverty line

decomposition of their factor earnings is important to explore the actual impact of policy reforms on poverty. Furthermore, obtaining information about people in terms of livelihood groups sharpens the predictive power of any analysis of the likely impact of trade liberalization or trade policy reforms on poverty (Verma, Hertel, & Valenzuela, 2011).

The majority of the Sri Lankan poor belong to the rural sector⁸⁵, therefore it is very important for policy makers to explore the poverty situation of specific groups by stratifying households according to their main source of income. Although income diversification can be seen in rural households in developing countries like Sri Lanka, the majority of them currently depend on farming activities as a main source of income. Komoto and Stone (2009) indicate that although knowing the total number of people moving out of poverty is helpful for policy implications, examining the variation among different income groups will assist in designing more effective poverty alleviation programmes for a country. This information highlights the specific groups of people that need to be focused on and prioritized when implementing welfare and other poverty reduction programmes. Also, it will help policy makers to explore efficient pro-poor, pro-growth strategies for poverty reduction by designing appropriate programmes for different groups, taking into account their capabilities and resources and taking poverty elasticity into consideration in Sri Lanka.

⁸⁵ According to the latest HIES 2009/10 report, 83 per cent of the total poor belong to the rural sector.

More than three quarters of the Sri Lankan population lives in the rural sector, with agriculture as the main source of income. Agricultural trade liberalization may strongly impact the rural poor. Thus, this attempt to examine the extent to which Sri Lankan rural households are affected by changes in agricultural trade policies builds on international literature for other countries and contributes significantly to the existing literature for Sri Lanka.

5.3 *Literature review: GTAP-POV framework-based analysis*

Although the GTAP-POV approach has a relatively short history, a number of studies using this approach have been conducted (Ahmed, Ahmed, & Sohail, 2010; Ahmed, Diffenbaugh, & Hertel, 2009; Hertel & Keeney, 2010; Hertel et al., 2011; Hertel et al., 2009; Verma et al., 2011). This literature is summarised in Table 5.1.

While trade and poverty studies generally focus on one or two of the links discussed in Chapter Two, based on the work of Winters et al. (2004), the GTAP-POV approach deals with four of these links (a to d) in a consistent and comprehensive fashion (Hertel et al., 2011). GTAP-POV links the GTAP CGE model with micro data from household surveys (Hertel et al., 2011). Within this framework, different strata of households are identified based on their primary source of income. The importance of stratifying households by their primary source of income was a key finding of Hertel and Reimer (2004a). They highlighted five household groups which rely almost exclusively on one source of income that provides 95 per cent or more of the total household income. More importantly, the GTAP-POV framework focuses on the specific population decile around the neighbourhood of the poverty line, using

a highly disaggregated poverty elasticity approach. An AIDAD demand system is incorporated into this model to estimate the expenditure required for each household stratum to remain at its initial level of utility, after changes of commodity prices⁸⁶. This initial level of utility is used to obtain the real income changes in each household stratum. Variations in poverty headcounts in each stratum are estimated using elasticities of poverty headcounts for each stratum with respect to real income (Estrades, 2013, p. 10).

With the United Nations Millennium Declaration 2000, almost all developing nations committed to reducing poverty by 50 per cent by 2015. Although the impacts of trade policy changes are global in scope, fundamentally the causes and likely impacts of trade policy changes are local (Hertel et al., 2011). Thus, linking global economic shocks to likely national poverty impact across a wide range of developing nations would provide better understanding of the implications for trade and poverty. This study represents an attempt to develop a GTAP-POV framework for Sri Lanka to fill the literature gap in this area.

⁸⁶ AIDADS (“An Implicit Direct Additive Demand System”) is a more flexible demand functional form than the more widely applied LES demand system. Unlike LES, which defines a fixed basket of basic goods for households, AIDADS do not restrict substitution of consumption goods of household below the poverty line when prices change. This feature is a key element of GTAP-POV model (Estrades, 2013, 10).

Table 5-1: Current studies using the GTAP_POV framework for policy analysis

Motivation/Question	Reference	Finding
Impact of Doha development agenda on poverty headcounts in poor countries	Hertel, Keeney, Ivanic and Winters 2009: “Why Isn’t the Doha Development Agenda more Poverty Friendly?”	Due to the exclusion of LDC trade reforms the DDA is less poverty-friendly than the policies omitted from that proposal
Impact of policy on calorie intakes of poor	Verma and Hertel 2009: “Commodity Price Volatility and Nutrition Vulnerability”	Special safeguards do not improve the calorie intake distribution for the poor in Bangladesh
Impact of climate volatility on poverty	Ahmed, Diffenbaugh and Hertel 2009: “Climate volatility deepens poverty vulnerability in developing countries”	Current climate extremes increase poverty across sample countries; urban wage earners are the most vulnerable
Impact of climate change on poverty	Hertel, Burke and Lobell 2010: “The poverty implications of climate-induced crop yield changes by 2030”	Expected climate change by 2030 has only modest poverty impacts; however, poverty increases are significant under ‘worst case’ scenario
Impact of trade facilitation on poverty	Stone, Strutt and Hertel 2010: “Assessing Socioeconomic Impacts of Transport Infrastructure Projects in the Greater Mekong Sub region”	Strong poverty reductions in the region as a result of infrastructure development and trade facilitation in the Mekong region
Poverty impacts of trade reform in the context of commodity market volatility	Verma, Hertel and Valenzuela 2011: “Are The Poverty Effects of Trade Policies Invisible?”	Short-run poverty impacts of full trade liberalization for staple grains worldwide are largely invisible when viewed against the backdrop of normal commodity market volatility
Provide sufficient technical details to permit new researchers to bring additional countries into the GTAP.	Hertel, Verma, Ivanic and Rios 2011. “GTAP-POV: A framework for assessing the national poverty impacts of global economic and environmental policies”	GTAP-POV framework offers a relatively simple vehicle for beginning to assess the broad-based, international poverty impacts of a wide range of global policies

Source: Hertel et al. (2011, p. 2) and compiled by author

5.4 *Implementing the GTAP-POV framework for Sri Lanka*

With the aim of analysing the poverty impact of agricultural trade liberalization in Sri Lanka, we first calculated the poverty headcount in each population stratum, along with poverty elasticities using HIES 2006/7 data. Secondly, we calibrated these data with the GTAP database (version 8.1). Finally, we used poverty measures and AIDAD calculations⁸⁷ to build a GTAP-POV framework for Sri Lanka. The method is briefly explained below.

5.4.1 Methodology: Data and analytical framework

This analysis was based on HIES data for Sri Lanka, covering one year from 2006 to 2007. The survey included 83,484 cases⁸⁸ drawn from a stratified sample of urban (26.5 per cent), rural (63.9 per cent) and estate (9.6 per cent) sectors in Sri Lanka. The HIES mainly covers demographic characteristics, household expenditure (food and non-food) and household income (monetary and non-monetary)⁸⁹ (DCS, 2011).

This analysis reconciled HIES data 2006/7 with GTAP data version 8.1, following Hertel et al. (2011) and Komoto and Stone (2009) for the household data cleaning procedure. Household income was linked to the GTAP factors following the

⁸⁷ The AIDADS calculations were kindly prepared by Professor Thomas Hertel and Dr. Monika Verma using the poverty measures for Sri Lanka and the required GTAP data was supplied by Professor Anna Strutt and myself based on the HIES 2006/7 and GTAP v8.1.

⁸⁸ This is the disaggregated national sample for the HIES data 2006/7 in Sri Lanka

⁸⁹ Further details of the HIES sample survey are provided in Chapter Three.

methodology of Ivanic (2004). We selected ADB and World Bank calculations as the baseline, according to which, 7.01% of the population exists on less than \$1.25 a day⁹⁰ and 29.1% lives on less than \$2 a day (purchasing power parity [PPP])⁹¹.

5.4.2 Household data cleaning procedure

The entire HIES (2006/7) data set for Sri Lanka was cleaned following the guidelines of Hertel et al. (2011) and Komoto and Stone (2009) while adding some changes⁹² in the method of imputation of wages.

The procedures adopted for data cleaning were:

1. We used Stata software to open the HIES 2006/07 archives data obtained from the Department of Census and Statistics Sri Lanka and to carry out most of the other computations. Thirty-four households were deleted due to missing socio-demographic variables such as age and education, which are needed for imputation of the values of individuals' incomes, and due to missing household income data. Thus, we used only 18,540 households for the analysis.
2. Even though most of the variables such as wages, profits, other cash and ad hoc income were reported individually in each household, all the calculations were standardized at the household level by aggregating into a single value

⁹⁰ See <http://data.worldbank.org/indicator/SI.POV.DDAY>

⁹¹ See <http://data.worldbank.org/indicator/SI.POV.GAP2/countries> , WDI and GDF 2010

⁹² We used one step that differs to Hertel et al (2011), explained in step six in the data cleaning procedures.

representing the whole household. Before aggregation, we computed annual reported wages⁹³ assuming that the job was held for 12 months⁹⁴.

3. Households were divided into seven strata following the studies of Hertel, Ivanic, Preckel, and Cranfield (2004), Hertel et al. (2009) and Komoto & Stone (2009), based on the main source of household income. Households were primarily categorized into five groups that relied almost exclusively⁹⁵ on one source of income (95 per cent or more income-gain from one source). The remaining households were classified as a diversified income group and divided into two categories according to the location of the household: rural or urban sectors. Although there are three main sectors, described as urban, rural and estate in the Sri Lankan context, for the GTAP-POV analysis rural and estate sectors were aggregated and considered as the rural sector for international comparison purposes. Table 5.3 shows that the majority of the households in Sri Lanka belong to the rural diversified stratum and there are very few purely agricultural households. Although the majority of the Sri Lankan population has agriculture as a main source of income, only 0.25 per cent of the households earn 95 per cent or more of their income from their agricultural activities.
4. For mapping factor payments from GTAP to the poverty module, all sectors of employment were classified using the international standard classification

⁹³ Wages in Sri Lanka were reported on a monthly basis. Only in-kind values were reported on a weekly basis as these come under the expenditure category.

⁹⁴ For instance monthly wages were multiplied by 12 as all Sri Lankan wages are counted as monthly wages and weekly in-kind incomes were multiplied by 52.

⁹⁵ For instance, if a household has received 95% or more of its total income from agricultural profit, it is categorized as an agricultural household.

of occupations (ISCO)⁹⁶ into two main sectors, skilled and unskilled, following the guidelines of Hertel et al. (2011). Skilled labour consists of all managers and administrators, professionals and para-professionals. All other occupations which cannot be classified as skilled labour are included in the unskilled labour category. Missing industries⁹⁷ were replaced using information for relevant occupations.

5. Sri Lankan HIES data includes six employment categories; government, semi-government, private, employer, own work and unpaid family workers. We considered the last three categories of employer, own work and unpaid family workers as “self-employed” and used this for wage imputation.
6. We introduced one difference to Hertel et al’s (2011) computations for wage imputation. In this study, wage imputations were done using a wage equation (a regression model)⁹⁸. Wages were imputed for self-employed⁹⁹ individuals including unpaid family workers who had not reported their income, using the same set of characteristics as for wage earners, such as age, education, skill and industry of employment based on a linear regression model. Imputed wages were adjusted following the method of Hertel et al (2011) to eliminate negative profits when aggregated imputed wages of the household exceeded total reported business income for the particular sector.

⁹⁶ Refer to Appendix 13(ISCO table here)

⁹⁷ There were 14 missing industries in the data set. This is called missing industries as they were not named according to the industry classifications. Thus I replaced an industry considering the occupation.

⁹⁸ This step is the only difference we introduced into the estimations as it was a convenient way of estimating and it was more realistic to impute data for missing values based on other characteristics.

⁹⁹ All workers who were engaged in agricultural and non-agricultural work for income and unpaid family works were considered as self-employed. Employers were placed in the same category.

7. If there were individuals who were self-employed in both agricultural and non-agricultural sectors, we allocated imputed wages proportionately.
8. Imputed wages were adjusted following the method of Hertel et al (2011) to eliminate negative profits when the imputed wages of the household exceed the total reported business income¹⁰⁰.

Table 5-2 : Definition of factor income

Factor Income	Definition
Agri Skilled Labour	Imputed agriculture skilled labour
Agri Unskilled Labour	Imputed agriculture unskilled labour
Non-Agri Skilled Labour	Imputed non-agriculture skilled labour
Non-Agri Unskilled Labour	Imputed non-agriculture unskilled labour
Wage Skilled Labour	Skilled wage labour
Wage Unskilled Labour	Unskilled wage labour
Agri Capital	$\text{Max}(0, (1-\alpha)((b_a - \bar{w}_a) + p_a))$
Non-agri Capital	$\text{Max}(0, ((b_n - \bar{w}_n) + p_n))$
Land	$\text{Max}(0, (\alpha((b_a - \bar{w}_a) + p_a))$
Transfers	Private and public transfers

Source: Hertel (2011; Ivanic, 2004; Komoto & Stone 2009)

Note: $\alpha = 44\%$; b_n = Non-agriculture business income; b_a = agriculture business income; \bar{w}_a = imputed agriculture income; \bar{w}_n = imputed non-agriculture income; p_a = agricultural property rent p_n = Non-agricultural property rent.

¹⁰⁰ To calculate adjusted imputed agricultural wages first we estimated the correction factor required to eliminate negative profits (γ_a): $\gamma_a = \frac{\bar{w}_{sa}^* + \bar{w}_{ua}^*}{b_a}$ if $\left\{ \begin{array}{l} \bar{w}_{sa}^* + \bar{w}_{ua}^* > 0 \\ b_a > \end{array} \right\}$, 0 otherwise, where \bar{w}_{sa}^* are the imputed skilled

agricultural wages, \bar{w}_{ua}^* are imputed unskilled agricultural wages, and b_a is the total reported profit from the household's agricultural business. Corrected imputed wages were estimated as follows:

$$\begin{aligned} &\text{if } \gamma_a > 1 && \left\{ \bar{w}_{sa} = \frac{\bar{w}_{sa}^*}{\gamma_a}; \bar{w}_{ua} = \frac{\bar{w}_{ua}^*}{\gamma_a} \right\} \\ &\text{if } 0 < \gamma_a \leq 1 && \left\{ \bar{w}_{sa} = \bar{w}_{sa}^*; \bar{w}_{ua} = \bar{w}_{ua}^* \right\} \\ &\text{if } \gamma_a = 0 && \left\{ \bar{w}_{sa} = \bar{w}_{ua} = 0 \right\}, \end{aligned}$$

Similarly non-agricultural wages were corrected using the same method, using non-agricultural wages instead of agricultural wages (Hertel, 2011).

5.4.3 Linking household income to the GTAP factors

The reported and imputed household income was linked to the GTAP primary factors based on (Ivanic, 2004) and Hertel et al. (2011) using the following assumptions:

1. Wage labour: Wages are received by employed members only. Wages include both cash and in kind payments.
2. Skilled Labour: Both reported and imputed wages were classified based on the individual's rating as either skilled or unskilled, based on occupational categories.
3. Transfers: Included all government and private transfers.
4. Property rent: Both agricultural and non-agricultural rents were included. Agricultural property rents consist of rental payments for land and all other farming tools. Non-agricultural property rents include rental payments for buildings, housing, non-agricultural equipment and dividends.
5. Agriculture vs. Non-agriculture: the Sri Lankan HIES has followed the International Standard Classification of Occupations (ISOC). Thus, this study was done based on the standard occupation codes following the Sri Lankan HIES survey questionnaire. Accordingly, farming, fishing and forestry are included in the agriculture category and all other occupations are included in the non-agriculture category.
6. Imputation of wages: This includes imputed labour income for all household members who are engaged in self-employment and do not engage in any wage-receiving employment. This imputed income was determined by the wage equation (regression model) for other labourers who are employed and

have the same characteristics including age, education, skill and industry of employment, in this data set. The regression model was established taking wage income as the dependent variable and personal characteristics such as age, education, skill, industry of employment and urban or rural sector as covariates.

7. Imputation for capital and land: As the HIES survey does not report returns to land and capital separately, we inferred it based on business profits, wages paid and imputed wages following Hertel et al. (2011). Accordingly, total profits were assumed to be the summation of payments for land, labour and capital. We used a GTAP estimate of 44 per cent (Table 5-2) of the share for land in order to separate factor income from agricultural profits using the guidelines of Hertel et al (2011).

5.5 *Analysis of the Sri Lankan GTAP-POV data*

Here we discuss the results of the poverty calculations, including the poverty headcounts based on earning strata and poverty elasticities using HIES data 2006/7. Then we move to analyse the poverty impact of agricultural trade liberalization using a GTAP_POV framework.

5.5.1 Structure of poverty in Sri Lanka based on earning stratum

According to the World Bank and ADB poverty calculations based on 2005 international prices, the poverty headcount ratio in Sri Lanka in 2007 was 7.01%

under US\$1.25 and 29.11% under US\$2¹⁰¹. We used these poverty headcount ratios for all the poverty calculations for international comparison and used the national poverty line for 2006/7 for the national poverty calculations. Table 5.2 shows the poverty headcount in Sri Lanka in each stratum, then as a percentage (poverty headcount share of total poverty for each stratum) and the poverty headcount share in the total population for each stratum. Table 5.3 shows that poverty is largely concentrated in the rural diversified stratum, followed by the urban diversified stratum. In comparison to some developing countries such as Cambodia and Lao PDR (Komoto & Stone, 2009), Sri Lanka shows a very different structure of poverty headcount by earning-based strata. Interestingly, no households could be found in the agricultural earning-based stratum under the UD\$1.25/day poverty line. However, looking at the real picture of poverty in Sri Lanka, this does not mean that there are no families in extreme poverty in the agricultural sector in Sri Lanka. The HIES data 2006/7 indicates that there are no purely agricultural households¹⁰² in extreme poverty, as most agricultural households are diversified in their sources of income due to the unpredictable nature of agricultural earnings in Sri Lanka. The highest poverty rate in the country is found in this diversified income group. The reason that the lowest poverty rate occurs in the agricultural household stratum in Sri Lanka is that most agricultural families are included in the diversified income group as they do not gain 95 per cent or more of their income from purely agricultural activities. Similarly, poverty is largely concentrated in the rural diversified stratum under both

¹⁰¹ Refer to <http://data.worldbank.org/indicator/SI.POV.DDAY> for the \$1.25 day poverty headcount and refer to http://www.adb.org/Documents/Fact_Sheets/SRI.pdf for \$2 day poverty headcount (accessed 2011)

¹⁰² A pure agricultural household means that more than 95% of household income is received from agriculture-related activities.

the US\$2/day poverty line and the national poverty line, because there are very few households in the purely agricultural stratum.

Table 5-3: Poverty headcount by household earnings-based strata for Sri Lanka¹⁰³(percent)

	Agriculture	Non agriculture	Urban labour	Rural labour	Transfer	Urban Diversified	Rural Diversified	Total
1.25US\$/Day								
Poverty rate in stratum	0.00	1.83	5.62	3.22	20.00	4.00	8.21	7.01
Share in total poverty	0.00	0.18	0.67	0.73	0.27	14.16	83.98	100
Share in total population	0.00	0.01	0.05	0.05	0.02	0.99	5.89	7.01
2US\$/Day								
Poverty rate in stratum	7.33	18.13	23.1	34.49	33.33	19.87	32.43	29.11
Share in total poverty	0.06	0.43	0.67	1.88	0.11	16.93	79.92	100
Share in total population	0.02	0.13	0.19	0.55	0.03	4.93	23.26	29.11
National poverty line								
Poverty rate in stratum	3.14	10.62	19.3	21.3	26.67	12.87	22.47	19.92
Share in total poverty	0.04	0.37	0.81	1.7	0.13	16.03	80.92	100
Share in total population	0.01	0.07	0.16	0.34	0.03	3.19	16.12	19.92

Source: Author's calculations using HIES data 2006/7

Note: Conversion factor has been adjusted to meet World Bank poverty ratio to link GTAP data (\$1.25/day=7% and \$2/day=29%)

5.5.2 Average factor income shares at poverty lines in Sri Lanka

The average factor income shares in the total household income were estimated in the neighbourhood of each poverty line based on the poverty income levels. Usually, poverty measures consider extremely poor households or the moderately poor household group. However, there is a huge risk that those households which are just

¹⁰³ Excluding zero income households, we included 78,342 people in the calculations from HIES 2006/7.

above poverty line will fall back into poverty, and they are considered highly vulnerable to any external shocks. Therefore, this analysis used 10 per cent of the population around the poverty line for each stratum (Komoto & Stone, 2009; Stone, Strutt, & Hertel, 2010). The trends in Table 5.3 show that poor households in Sri Lanka mostly depend on unskilled wage labour, followed by transfers. For instance, 50 per cent of the total income of rural diversified households around the US\$1.25/day poverty line comes from unskilled wages.

5.5.3 Poverty elasticities in Sri Lanka

Poverty arc elasticities(ε_{rs})¹⁰⁴ for the seven income strata in Sri Lanka were computed by shocking income by one per cent and then calculating the change in poverty based on the methods of Hertel et al. (2011); Komoto and Stone (2009). Compared to normal poverty elasticity, poverty arc elasticity is a more realistic approach where there is a gap between income levels at the poverty line, as it focuses on changes in the neighbourhood of the poverty line and increases the range over which poverty impacts can be measured. Arc elasticity shows the change in poverty headcount with respect to the change in the real income of the households in each stratum in the neighbourhood of the poverty line. This elasticity was calculated using

¹⁰⁴ Poverty arc elasticity calculations are done by adopting

$$\varepsilon_{rs} = - \frac{dF_{rs}(\bar{y}_r^p)/dy_{rs}^p}{F_{rs}(\bar{y}_r^p)/y_{rs}^p}, \text{ where } F_{rs}(\bar{y}_r^p) \text{ is the cumulative distribution function that computes poverty}$$

headcount ratio when \bar{y}_r^p is the poverty income level in country r (Hertel et al., 2011). This arc elasticity calculation uses the following procedure: firstly, line up the stratum population from lowest to highest household income/expenditure; secondly, taking 10 per cent of the households around the poverty line (5% from each side of the poverty line), compute the elasticity using the above formula (the slope of the cumulative distribution).

10 per cent of the population around the poverty line, using the method suggested by Hertel et al. (2011) and Komoto and Stone (2009)¹⁰⁵.

¹⁰⁵ In particular, we selected the poverty line in domestic currency that is required to give the poverty headcount estimated by the World Bank (Implied exchange rate conversion factors: \$1.25/day= Rupees 47.38, \$2/day=Rupees 91.32).

Table 5-4: Average factor income shares of Sri Lankan households around poverty line (10 % of the population), by income stratum

Strata	Agriculture Skilled	Agriculture Unskilled	Non- agriculture Skilled	Non- agriculture Unskilled	Wage Skilled	Wage Unskilled	Agriculture Capital	Land	Non- Agriculture Capital	Transfer	Total
US\$1.25/day poverty line											
Agriculture	0.00	29.76	0.00	0.00	0.00	0.00	39.33	30.91	0.00	0.00	100
Non Agriculture	0.00	0.00	33.33	16.67	0.00	0.00	0.00	0.00	50.00	0.00	100
Urban Labour	0.00	0.00	0.00	0.00	16.67	83.33	0.00	0.00	0.00	0.00	100
Rural Labour	0.00	0.00	0.00	0.00	5.88	94.12	0.00	0.00	0.00	0.00	100
Transfers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100	100
Diversified Urban	0.00	1.88	6.46	14.13	1.72	49.37	0.70	0.55	1.33	23.87	100
Diversified Rural	0.27	14.78	3.70	5.89	0.96	50.24	3.16	2.48	0.73	17.80	100
TOTAL	0.19	12.38	4.07	6.76	1.38	51.14	2.55	2.00	0.99	18.54	100
US\$2/day poverty line											
Agriculture	0.00	48.55	0.00	0.00	0.00	0.00	28.62	22.49	0.00	0.34	100
Non Agriculture	0.00	0.00	41.26	42.31	0.00	0.00	0.00	0.00	16.10	0.32	100
Urban Labour	0.00	0.00	0.00	0.00	14.56	85.18	0.06	0.05	0.00	0.16	100
Rural Labour	0.00	0.00	0.00	0.00	4.71	95.29	0.00	0.00	0.00	0.00	100
Transfers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100
Diversified Urban	0.22	1.13	8.09	11.61	6.30	54.27	1.16	0.91	3.57	12.74	100
Diversified Rural	0.59	9.22	4.55	6.84	2.56	55.87	3.45	2.71	2.23	11.98	100
TOTAL	0.48	7.31	5.31	7.87	3.62	55.72	2.94	2.31	2.62	11.82	100
National poverty line											
Agriculture	0.00	49.19	0.00	0.00	0.00	0.00	28.39	22.31	0.00	0.11	100
Non Agriculture	0.00	0.00	37.98	31.07	0.00	0.00	0.00	0.00	30.65	0.30	100
Urban Labour	0.00	0.00	0.00	0.00	4.76	95.24	0.00	0.00	0.00	0.00	100
Rural Labour	0.00	0.00	0.00	0.00	9.41	90.52	0.00	0.00	0.00	0.07	100
Transfers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100
Diversified Urban	0.23	1.36	6.92	8.13	5.59	59.23	0.89	0.70	2.87	14.08	100
Diversified Rural	0.39	10.15	3.52	6.96	2.01	55.34	3.96	3.11	1.96	12.57	100
TOTAL	0.35	8.35	4.18	7.14	2.78	56.46	3.34	2.62	2.21	12.57	100

Source: Author calculations using HIES 2006/7 data

Table 5.5 reports the stratum-specific poverty elasticities under international standard poverty lines and the national poverty line in Sri Lanka. These poverty elasticities were obtained through changes in household income across the poverty line in each stratum. Poverty arc elasticities were above 1.0 for all strata except the transfer-income household stratum. The highest poverty elasticity was seen in the agricultural stratum under the US\$2/day poverty line while the second highest poverty elasticity was in the rural labour stratum (under both the US\$1.25/day poverty line and the national poverty line). The lowest poverty elasticities (below 1.0) were reported in the transfer stratum, where there were very limited numbers of households in the neighbourhood of the poverty line. There were no households at all in the agricultural stratum under the US\$1.25/day poverty line. However the highest poverty elasticity was observed in the agricultural stratum under the \$2/day poverty line, with a low poverty headcount.

Table 5-5: Poverty elasticity around the poverty lines by income stratum

Stratum	US\$1.25/day	US\$2/day	National Poverty
Agriculture	2.28	3.88	1.97
Non Agriculture	2.21	2.20	1.67
Urban Labour	2.47	1.11	1.47
Rural Labour	2.87	2.06	2.41
Transfers	0.52	0.95	0.74
Urban Diversified	1.00	2.14	2.26
Rural Diversified	2.34	1.65	1.94

Source: Author calculations using Sri Lanka HIES data 2006/7

Note: Conversion Factor has been adjusted to meet World Bank poverty ratio (\$1.25/day=7% and \$2/day=29%)

* Note: As there were no households below the US\$1.25/day poverty line in the Agriculture stratum, it was impossible to calculate the exact arc elasticity for the group. Thus, we used the poverty arc elasticity figure for the total population under the poverty line as a proxy.

Note: In both the non-agricultural stratum and the rural labour stratum, those below the US\$1.25/day poverty line were less than 5 per cent. Thus it was not possible to get 5 per cent on each side of the poverty line.

The results also showed a comparatively lower poverty elasticity in the rural diversified stratum under the US\$2/day poverty line, where there is the highest level of poverty in Sri Lanka. This study considered only 10 per cent of the households in the neighbourhood of the poverty lines and there was an inadequate percentage of households available in some strata. For example, no households could be found below the extreme poverty line (US\$1.25/day) in the agriculture stratum, therefore total poverty elasticity was used here as a proxy.

5.5.4 Poverty analysis based on GTAP_POV framework

Sri Lanka was a founding member of the GATT in 1948. Sri Lanka also ratified the Marrakesh Agreement in 1994, and has been a member of the WTO since its beginning in 1995. With ratification of the WTO, Sri Lanka agreed to undertake its commitments for almost all WTO agreements. Although Sri Lanka has shifted towards a more open economic policy regime with some unilateral liberalisation of its trade policies since 1977, the country has changed the direction of its trade policies somewhat. Given the frustrations of the WTO Doha Round, Sri Lanka, like other countries, has been paying increasing attention to regional and bilateral agreements, especially with other Asian, Middle-Eastern and emerging economies for integration with global markets (Geeganage, 2013, p. 137). We therefore modelled a range of potential policy changes, including full multilateral liberalisation, full unilateral liberalisation by Sri Lanka, and a bilateral trade agreement with India. Each of these

agreements was modelled with full tariff elimination for all goods, and then for liberalisation of just agricultural and food tariffs.

Bilateral trade liberalisation between India and Sri Lanka is of particular interest, given that trade links between India and Sri Lanka have a long history, with recorded commercial links since the 4th century (Institute of Policy Studies of Sri Lanka, 2013, p. 7). During the Second World War, half of Sri Lanka's total exports were absorbed by India¹⁰⁶. Although these economic ties were weakened with the implementation of inward-looking economic policies in both countries in the early years of post-independence, the multilateral, regional and bilateral trade ties have strengthened again with the second wave of economic liberalisation in early 1990s. By the mid-1990s India had become the largest source of imports to Sri Lanka (Kelegama, 2014). Although the aim was to strengthen bilateral trade relations¹⁰⁷ between India and Sri Lanka from the early 1990s, the India-Sri Lanka Free Trade Agreement (ISFTA) was finally signed in 1998, with the overall objective of facilitating and improving trade relations between the two countries, along with broadening economic integration to realise potential benefits. Some of the arguments for implementing the ISFTA included the ineffectiveness¹⁰⁸ of existing trade channels, Special and Differential

¹⁰⁶ In 1938 for example, 42.5 per cent of Sri Lanka's import bill was for imports from India and the larger share of such imports was related to plantation labour.

¹⁰⁷ The history of bilateral trading agreements in Sri Lanka goes back to the China-Sri Lanka Rubber Rice Agreement. Sri Lanka continued strengthening its trading relationships at multilateral, regional and bilateral levels after embarking on a liberalisation programme in 1977 and the liberalisation process has accelerated since the 1990s with the 'second wave' of policy reforms.

¹⁰⁸ Trade agreements such as the Asia-Pacific Trade Agreement (AFTA) and the South Asia Preferential Trade Agreement (SAPTA) were based on a 'positive list' approach to tariff preferences (commodity-to-commodity based negotiations). The tariff concessions of such agreements were not deep enough to stimulate flows of traded goods, so these agreements did not effectively facilitate expectations of trade between India and Sri Lanka. Therefore, the demand for a new approach to trade and tariff liberalisation was fulfilled by the implementation of ISFTA. ISFTA was negotiated on the lines of asymmetric treatment and based on a 'negative list' approach where all the tariff lines apart from those listed in the negative list were subject to zero-duty at the end of implementation (Institute of Policy Studies of Sri Lanka, 2013, P.9).

Treatment for Sri Lanka under ISFTA and informal trade¹⁰⁹ (Kelegama, 2014, p. 9).

While we could not fully model all aspects of the agreement, we were at least able to show the potential impacts of removing tariffs as part of the agreement.

5.5.4.1 Policy Simulations

Poverty changes for the multilateral, unilateral and bilateral liberalisations modelled were analysed for seven household strata in Sri Lanka using the GTAP-POV framework. Multilateral liberalisation is the ultimate ambition of the WTO, however, given the difficulties in negotiating this type of agreement, it was also of interest to see what gains may be possible for Sri Lanka through unilateral liberalisation. In addition, we modelled an Indo-Sri Lankan trade agreement as an important example of a bilateral trade agreement.

- | | |
|-------------|---|
| 1. FullTar | Full elimination of all tariffs in the database |
| 2. FullAg | Full elimination of all tariffs on agricultural goods in the database |
| 3. Unilat | Elimination of all tariff for all goods imported from all regions into Sri Lanka |
| 4. UnilatAg | Elimination of all tariffs on agricultural goods imported from all regions into Sri Lanka |
| 5. ISFTAF | Eliminate all bilateral tariffs for all trade between Sri Lanka and India |
| 6. ISFTAAg | Eliminate all bilateral tariffs for agricultural trade between Sri Lanka and India |

5.5.4.2 Analysis of poverty impact of agricultural trade liberalisation

¹⁰⁹ Informal trade was taking place on a large scale due to high tariffs and cumbersome government procedures attached to trading goods. Therefore, ISFTA aimed to bring some of this informal trade into the formal trading network by means of trade and tariff liberalisation, expecting to reduce high transaction costs and inefficiencies in the process.

Although there have been studies using CGE analysis that concluded trade liberalisation has reduced poverty in Sri Lanka (Narampanawa, 2005; Perera et al., 2014), this study focused on the poverty impact of agricultural trade liberalisation in particular, for the first time in the Sri Lankan context. The simulation focused on exploring the poverty impact of complete and bilateral agricultural trade liberalisation in Sri Lanka using 2006/7 HIES data and the GTAP version 8.1 database. Poverty changes were examined over seven earning-based strata under the international standard poverty lines of US\$1.25/day and US\$2/day. Although the simulations are conceptually simple, incorporating poverty data into the model represents a significant innovation for modelling Sri Lanka.

Table 5-6 shows the impact on selected aggregate macro-economic indicators under each scenario modelled. Full liberalisation leads to the greatest overall gains, with an increase in real GDP of 0.45 per cent. Almost half of this gain could be realised with multilateral agricultural liberalisation alone. If Sri Lanka were to unilaterally remove tariffs, the gain in real GDP is estimated to be 0.33 per cent, with just over half of this possible from removal of agricultural and food tariffs alone. Interestingly the bilateral agreement with India appears to lower real GDP slightly for Sri Lanka: multiple other distortions remain in the global database and trade diversion can erode the benefits of bilateral agreements. Turning to focus on the impact of agricultural liberalisation on trade flows, full agricultural trade liberalisation and unilateral agricultural trade liberalisation are the most favourable for the improvement of real exports. Complete elimination of tariffs for all trade for all countries and unilateral agricultural trade liberalisation leads to particularly strong increases in real imports.

Table 5-6: Selected aggregate results, Sri Lanka (% change)

	FullTar	FullAg	Unilat	UnilatAg	ISFTAF	ISFTAAg
Real GDP	0.45	0.21	0.33	0.17	-0.03	-0.05
Real exports	4.42	5.67	6.00	5.31	0.76	1.17
Real imports	8.43	3.70	6.18	2.70	1.61	0.63

Source: Simulation Results

Turning to the main focus of this study, the poverty impact of agricultural trade liberalisation, we examined the impact of policy changes on prices of factor endowments and the poverty headcount in Sri Lanka, given the scenarios modelled. According to Table 5-7, overall factor earnings are very small relative to the cost of living at the poverty line except in the case of the full trade liberalisation scenario. Full agricultural trade liberalisation supports agricultural land to gain the highest factor price increase among all the scenarios, followed by agricultural labour and capital. In contrast, unilateral agricultural trade reform supports significant gains for non-agricultural labour and capital. Removing tariffs on agricultural trade between India and Sri Lanka alone does not lead to significant gains for the Sri Lankan factor market. Indeed trade liberalisation, particularly in agriculture, between India and Sri Lanka does not appear favourable for the factor earnings related to agriculture, and may adversely impact the farming community in Sri Lanka. Unilateral agricultural trade liberalisation reduces the earnings with respect to land and also leads to a small reduction in agricultural earnings, but appears favourable for the incomes of all other factors.

Table 5-7: Deflated endowment price changes by stratum for Sri Lanka under alternative trade liberalisation scenarios (%)

US\$1.25 per day						
Endowment	FullTar	ISFTAF	Unilat	FullAg	ISFTAAg	UnilatAg
Ag. Land	5.57	-0.99	-2.76	7.34	-0.67	-2.10
Ag.labour (unskilled)	5.55	0.29	0.84	4.48	-0.14	-0.10
Ag.labour (skilled)	5.43	0.42	1.15	4.02	-0.09	0.10
Non-ag.labour (unskilled)	5.63	1.94	5.56	1.07	0.55	2.48
Non-ag.labour (skilled)	5.38	1.87	5.24	0.87	0.50	2.37
Wage labor (unskilled)	5.61	1.60	4.59	1.78	0.41	1.95
Wage labor (skilled)	5.38	1.86	5.22	0.88	0.50	2.36
Agriculture capital	5.17	0.44	1.14	4.02	-0.02	0.24
Non-ag.capital	4.83	1.99	5.49	0.66	0.68	2.82
Transfer payment	2.21	0.29	1.17	0.54	0.11	0.84

US\$2 per day						
Endowment	FullTar	ISFTAF	Unilat	FullAg	ISFTAAg	UnilatAg
Ag. Land	5.43	-1.06	-3.15	7.23	-0.76	-2.47
Ag.labour (unskilled)	5.40	0.22	0.43	4.37	-0.23	-0.48
Ag.labour (skilled)	5.29	0.35	0.74	3.91	-0.19	-0.28
Non-ag.labour (unskilled)	5.48	1.87	5.13	0.96	0.45	2.09
Non-ag.labour (skilled)	5.23	1.79	4.82	0.77	0.40	1.98
Wage labor (unskilled)	5.46	1.52	4.17	1.68	0.31	1.56
Wage labor (skilled)	5.23	1.78	4.80	0.78	0.40	1.97
Agriculture capital	5.02	0.36	0.73	3.91	-0.12	-0.14
Non-ag.capital	4.68	1.91	5.06	0.56	0.59	2.43
Transfer payment	2.07	0.21	0.76	0.44	0.01	0.45

Source: Simulation results

Given our primary concern over the impact on poverty of each simulation, particularly with regard to agricultural trade liberalisation, Table 5.7 presents results for the number of individuals projected to move out of poverty at the extreme poverty line and at the US\$2 per day poverty line in Sri Lanka under each trade liberalisation scenario, based on household income strata. According to Table 5.7, the largest number of poor will move out of poverty under the scenarios of multilateral full trade liberalization and unilateral full trade liberalization in both poverty levels, regardless

of household stratum. Further, the results indicate that the highest number of individuals emerge from poverty in the rural diversified household stratum, followed by the urban diversified stratum and the rural labour stratum under both poverty lines.

Table 5-8: Reduction in poverty headcount by household stratum in Sri Lanka under alternative trade liberalisation scenarios (number of individuals)

	FullTar	FullAg	Unilat	UnilatAg	ISFTAF	ISFTAAg
Stratum	US\$1.25 per day					
Agriculture	-	-	-	-	-	-
Non-agriculture	2,544	1,406	2,467	2,364	2,184	1,154
Urban-labour	9,402	7,568	9,320	8,149	7,595	3,239
Rural-labour	10,180	8,378	10,085	8,765	8,167	3,439
Transfers	3,394	1,586	2,627	2,161	957	384
Diversified-urban	196,802	148,574	193,847	162,788	144,842	58,074
Diversified-rural	1,169,129	1,026,307	1,126,851	867,019	784,971	256,162
Total	1,391,452	1,193,820	1,345,196	1,051,246	948,717	322,452
	US\$2/ per day					
Agriculture	3,979	3,967	(1,395)	(5,212)	(123)	(1,495)
Non-agriculture	25,853	14,473	25,299	22,711	21,781	9,439
Urban-labour	37,823	29,838	37,196	30,337	29,913	10,422
Rural-labour	109,503	88,300	108,044	87,079	86,090	29,542
Transfers	5,231	2,120	3,190	2,190	1,148	58
Diversified-urban	978,633	734,557	961,797	760,785	738,940	246,916
Diversified-rural	4,618,567	3,924,422	4,448,378	3,157,970	3,210,809	838,323
Total	5,779,589	4,797,678	5,582,509	4,055,861	4,088,558	1,133,206

Source: Simulation results

Thus, it is clear that the rural diversified stratum gains the most favourable results in terms of moving out of extreme poverty in Sri Lanka under trade liberalization in

general and agricultural trade liberalization in particular. Although agriculture is one of the main sectors of the economy, there are no purely agricultural households around the neighbourhood of the extreme poverty line in Sri Lanka. Thus, Table 5.7 does not indicate the number of individuals moving out of extreme poverty in the agriculture stratum. Almost all rural agricultural households are included in the rural diversified stratum, which is the largest beneficiary group of agricultural trade liberalization in Sri Lanka. This reflects the high poverty ratio in the rural diversified stratum in Sri Lanka.

Table 5.8 presents the overall poverty impact of trade liberalisation in Sri Lanka under the scenarios modelled. The largest number of extremely poor has moved out of poverty under full trade liberalisation, followed by unilateral trade liberalisation. Under full trade liberalisation, extreme poverty is projected to reduce by 1.39 million and US\$2/day poverty to reduce by 5.78 million.

Table 5-9: Reduction in total poverty headcount in Sri Lanka under alternative trade liberalisation scenarios (number of individuals)

Poverty line	FullTar	FullAg	Unilat	UnilatAg	ISFTAF	ISFTAAg
US\$1.25 per day	1.39	1.19	1.35	1.05	0.95	0.32
US\$2 per day	5.78	4.8	5.58	4.06	4.09	1.13

Source: Simulation results

Unilateral trade liberalization reduces extreme poverty by 1.35 million and US\$2/day poverty by 5.58 million. Moreover, agricultural trade liberalisation significantly reduces poverty under both multilateral and unilateral trade agreements in both the multilateral and unilateral liberalisation scenarios. However, the bilateral agricultural trade agreement modelled appears to neither support factor endowment prices nor reduce poverty headcount changes significantly. Within the agricultural trade liberalisation scenarios modelled, multilateral and unilateral trade liberalisation achieve the highest poverty reduction in Sri Lanka, while complete tariff liberalisation reduces poverty even more than agricultural trade liberalization alone.

5.6 *Conclusion and policy implications*

Although Sri Lanka has a very detailed and constantly updated poverty profile, very limited attempts have been made to study poverty within different income groups, other than the urban and the rural sector low income and high income groups and the estate sector low income groups (Narampanawa, 2005) and expenditure deciles (Perera et al., 2014). Observing poverty changes using poverty elasticities in specific income groups (over seven income strata in this analysis) is a new dimension for the Sri Lankan poverty profile, which can generate insights into the impacts of trade policy changes on poverty. The eradication of rural poverty in Sri Lanka remains a major challenge for policy makers, with rural poverty being particularly important. This GTAP-POV modelling and analysis suggests that multilateral agricultural trade liberalisation reduces poverty most effectively and that agricultural liberalisation is a very important component of this. However, even if multilateral liberalisation is not

possible, unilateral reductions in tariffs by Sri Lanka may also lead to substantial levels of poverty reduction, again with agricultural liberalisation being a particularly important component. However, bilateral trade agreements such as ISFTA are likely to have smaller impacts on poverty reduction for Sri Lanka.

Chapter 6: A review of poverty focused policies and future policy needs in Sri Lanka

6.1 *Introduction*

Various poverty reduction programmes and policies have been implemented in developing countries since the endorsement of the Millennium Development Goals (MDGs) at the UN in September 2000. However, there are still more than one billion people living in extreme poverty, indicating that human poverty remains widespread in some parts of the world¹¹⁰. In this context, poverty reduction through real improvements of peoples' lives is an overarching goal for all affected countries. Sri Lanka is facing a major task in poverty reduction as it experienced a brutal civil war which hampered the entire development of the country for nearly three decades.

Nevertheless, Sri Lanka is a very good example of a developing country as it has been able to reduce poverty consistently since its independence in 1948 despite all the obstacles it has faced. The major structural transformation of the economy and the country's social system occurred during the last 150 years of British Rule (Sahn & Edirisinghe, 1993, pp. 35-36). The Human Development Index (HDI) in Sri Lanka notes that successive governments have paid considerable attention to human development through significant poverty alleviation programmes, mainly based on social welfare. Heavy investments in the fields of education and health have contributed immensely to poverty reduction through human development in Sri

¹¹⁰ See <http://www.undp.org/content/dam/undp/library/corporate/fast-facts/english/FF-Poverty-Reduction.pdf> (accessed on 18th May 2014)

Lanka. For example, Chapter 3 in this thesis emphasizes that education is one of the most powerful poverty determinants in each economic sector despite expenditure deciles in Sri Lanka. The significant human development that has occurred in Sri Lanka is represented in its latest ranking in the HDI, which brought Sri Lanka to the top of South Asia (Table 6-1).

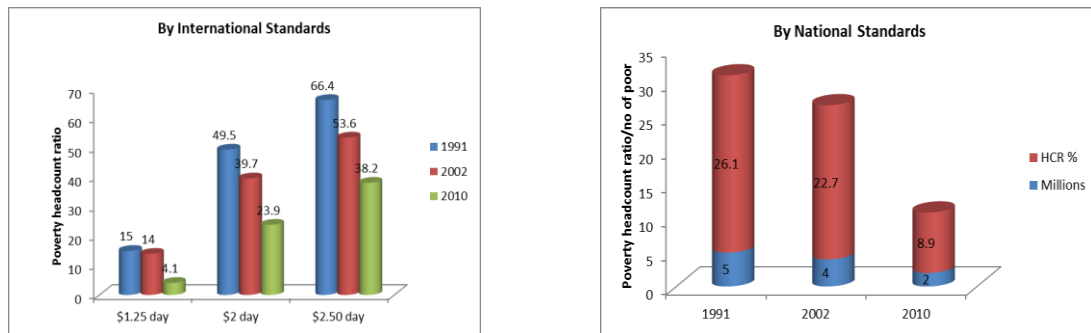
Table 6-1: Human development achievements in Sri Lanka

HDI	Sri Lanka	South Asia	World
2013	0.75	0.588	0.702
2012	0.715	0.558	0.694
2011	0.691	0.548	0.682
2010	0.686	0.545	0.679
2009	0.68	0.538	0.676
2008	0.676	0.532	0.674
2007	0.673	0.527	0.67
2006	0.667	0.518	0.664
2005	0.662	0.51	0.66
2000	0.633	0.468	0.634
1995	0.604	0.444	0.613
1990	0.583	0.418	0.594
1985	0.561	0.389	0.576
1980	0.539	0.356	0.558

Source: Human Development Report 2013

The poverty profile demonstrates that Sri Lanka is experiencing an unprecedented reduction of the poverty headcount ratio and has achieved the First Millennium Development Goals (MDGs) by reducing poverty by more than 50 per cent between 2002 and 2010 (Figure 6-1) despite the protracted civil conflict in the country.

Figure 6-1: Poverty trends in Sri Lanka by national and international standards



Source: World Bank poverty data¹¹¹

After nearly three decades of civil conflict, Sri Lanka needs to pay more attention to the resettlement of people in highly war-affected areas and to the households of victims of the war. Although the present government is initiating a number of development programmes through the “Mahinda Chinthana”¹¹² (Mahinda Vision) concept to assist the poor in Sri Lanka, specially designed pro-poor, pro-growth regional development policy and/or rural development policy is needed for poverty reduction and sustainable development in Sri Lanka.

Although Sri Lanka has implemented rural development policies from time to time in different phases, these were highly politicized. Thus, post-war Sri Lanka needs a long-term national rural development policy specifically focused on war-affected areas and the rural diversified income group,¹¹³ which is the poorest category in the country today based on the findings of the Chapter Five.

¹¹¹ See <http://povertydata.worldbank.org/poverty/country/LKA> (accessed 18th May 2014)

¹¹² Mahinda Chinthana (Mahinda vision) is the government’s vision for development since 2005 (<http://www.president.gov.lk/pdfs/MahindaChinthanaEnglish.pdf>).

¹¹³ Chapter Five provides further information regarding this income group classification and calculations

The study of colonial period literature related to poverty in the country helps to explain present-day policy implications in many ways. On one hand, reviewing the history and evolution of poverty policies in Sri Lanka since the colonial period helped to understand the costs and benefits of these policies. On the other hand, such analysis also illustrated the causes of failures in these policies. This provides guidance on how not to repeat the same policies or how to adjust or implement them without repeating the same mistakes. Review of the historical literature also helped to understand the root causes of the problem of poverty, which is necessary in order to take remedial measures relevant to each economic sector. Thus, this Chapter reviews the origins of the problem of poverty and poverty-focused policies in Sri Lanka since the colonial period, with a view to obtaining relevant policy lessons concerning important conceptual and measurement issues. The origins of the problem of poverty and poverty-focused policies were reviewed using secondary sources of information. The policy implications for poverty reduction, particularly for the rural sector in Sri Lanka, are presented.

6.2 *Policies contributing to poverty reduction in Sri Lanka*

6.2.1 Policies during the colonial period

Sri Lanka was self-sufficient in rice in ancient times, but colonial policies converted this self-sufficient economy into a market-driven modern economy. Although there was systematic cultivation for the production of exports in plantations, often with the use of foreign capital, this transformation made the economy dependent on foreign

sources even for basic necessities such as food and clothing and created an export economy. Until then, the village was a self-contained unit, organized under a feudal system in which all the land was the property of the king (Corea, 1975, pp. 48-49). Thus, the cultivator in Sri Lanka was more or less independent as far as his own lands were concerned, though obliged to perform certain services¹¹⁴ for the King in return for his holding of land.

6.2.2 Importation of labour created a poverty group in Sri Lanka

On arrival at the estates¹¹⁵, the labour gangs were forced to locate together, four or five persons to an eight by ten foot room. Rows of such rooms, commonly referred to as 'lines', constituted the residence of the labourers on the plantations. Labourers on the tea estates worked ten continuous hours a day in the field without a break and earned wages which were insufficient to live on (Bandarge, 1983, p. 204). Therefore, it can be assumed that conditions on the early coffee estates were as bad or worse.

The above facts highlight that Sri Lanka imported the problem of poverty in the 19th century by creating landless groups with the importation of Indian Tamil labour for the plantation sector and then importing rice to feed these labourers. Rice importation reduced the only income of the peasants in the agricultural sector, thus creating poverty there too. As explained in Chapter Three, the highest poverty rate is still in the estate sector where these Indian Tamil labourers were located.

¹¹⁴ These services were known as *Rajakariya* which included general services such as repairing and maintaining the paths and bridges in the living area of the particular person and specialized services determined by the caste or the social/vocational group which the person belonged to by birth (Corea, G. 1975, pp49).

¹¹⁵ Tea, coffee, rubber, etc. specially tea estates

6.2.2.1 Indebtedness of the plantation workers

One of the main characteristics of the plantation economy in Ceylon was that fluctuations in demand and supply of labourers did not affect the wages of labourers as the wage rate remained fixed. Although there were sharp fluctuations in the demand and supply of labour, the daily wage rates remained unchanged between 1880 and 1910 (Bandarge, 1983, p. 208). The labour market was dominated by cash advances rather than wages. Unlike wages, cash advances tied the labourer to the plantation and ensured the planter his labour supply. Cash advances included coast advances¹¹⁶ as well as sums given out by the planters to labourers upon arrival at the estates. However, the planters preferred to compete for labour by offering large cash advances.

For labourers in the estates, cash advances were the primary means of bridging the gap between low wages and their accumulated debts. However, these cash advances tied them into a cycle of debt bondage. Although cash advances were readily available in months of peak work, the labourers had to turn to credit from the labour headman or from the 'kanganis' and the 'Chettiyas'¹¹⁷ at high interest rates. The ultimate outcome was the extraction of a large portion of the labourers' wages by the credit providers. As planters did not pay wages directly to the workers but to the labour headmen, this led to corruption and extortion (Bandarge, 1983, p. 209). Further, low wages and huge debts kept these Indian labourers in no position to remit

¹¹⁶ Coast advances refer to the sums given out by the *kangani* on recruitment back in the South Indian villages (Bandarage, 1983, 208).

¹¹⁷ Chettiyas are moneylenders from South India.

money to their villages in South India. Both tea and coffee estate workers faced the same situation. The entrenchment of this debt bondage is most clearly reflected in the way they maintained a chit system. Due to this bond system a labourer was unable to quit an estate unless he/she paid back the debt marked in his/her chit. This situation is reflected in the following statement.

“.....the iniquitous thundu system (abolished only in 1921) which tied down the labourer to an estate and deprived him mobility. By this system the miserably paid and exploited labourer who invariably incurred a large debt to 'kangani' and to this employer was unable to seek new employment unless he discharged his debt to his former employer (Bandarage, 1983, p. 209)”.

It is important to note here that the remittances sent back by the labourers went for repayment of debt to creditors back at home. It has been observed that after decades of migration the South Indian regions which were the primary suppliers of labour to the plantations in Ceylon still remained poor and backward (Bandarage, 1983, p. 210). Furthermore, Kanganis and Chettiyars accumulated wealth through the exploitation of Indian estate labourers and Kandyan peasantry. They invested the wealth more on coffee smallholdings and less on paddy fields in the Kandyan villages.

Rice was the staple food of the labourers on the estates. Therefore, one of the means that the planters used to ensure labour turnout for work was partial payment of wages in rice. The rice rations were curtailed when the labourers failed to work the required number of days and rice supplies were not given if they were sick and unable to work for the day. In the early twentieth century the rice quota was given per week. It was

¼ bushel¹¹⁸ for each man and woman and 1/8 of a bushel for each young working girl or boy (Bandarge, 1983, p. 210). Generally during the tea period, the ratio of wages for men, women and children were 5:4:3 respectively. Some studies pointed out that women and children who worked on the coffee plantations did not receive their own wages and their labour was counted towards the man's wage.¹¹⁹ Further, it is reported that the gender and age-based division of labour and the specificity of the exploitation of women and children were crucial to the profitability of the plantation economy. The receipt of part of their wages in rice, along with the accumulated debt, left the labourers with hardly any cash to meet their other day-to-day expenses. Therefore they had to barter a part of their rice ration, which was received at a fixed rate generally below the retail market price, with traders for their other needs (Bandarge, 1983, p. 211). However, notwithstanding planters' protests to the contrary, Michael Roberts has noted that "through the years the planters made a 'considerable profit' from the system of partial payment of wages in rice (Roberts, 1966, p. 118) and planters found that it was beneficial in the long run to keep wage rates fixed and to bear the price fluctuations in the market. The planters realized that once labourers' wages were increased to meet the increasing rice prices, it would be difficult to bring them down when the price of rice fell. Moreover, partial payment in rice guaranteed the minimum subsistence of the labourers and also their turn-out for work (Wesumperuma, 1974). The available information leads to the conclusion that the

¹¹⁸ A bushel is an imperial and U.S. customary unit of dry volume, equivalent in each of these systems to 4 pecks or 8 gallons (9.31 U.S. liquid gallons). It is used for volumes of dry commodities (not liquids), most often in agriculture (<http://en.wikipedia.org/wiki/Bushel>).

¹¹⁹ Jean Grossholtz, "Forging Capitalist Patriarchy: The Effect of British Colonial Rule in Sri Lanka," unpublished manuscript, pp. 252-59 in Bandarage (1983, p 210).

system of debt bondage and the partial payment of wages in rice provided the basis for the plantations' profit planning and control system. Although this was very successful from the point of view of the planters, the indebtedness created a poverty group in the estate sector.

6.2.2.2 Importation of rice in the colonial economy

Rice importation increased significantly during the nineteenth century in Ceylon (Bandarge, 1983, p. 213). The major portion of this imported rice went to feeding the estate labourers in the coffee estates and a significant portion went to the urban population who were engaged in plantation-related service activities such as transportation, construction and trade. This population depended entirely on imported rice for their subsistence.

“Three million out of five million bushels of rice imported went to Tamil immigrants. The rest went to feed traders, constructors, carpenters and others who found it more profitable to buy imported grain rather than engage in their own cultivations (Bandarge, 1983, p. 213)”.

The quotation above indicates that ironically, during the nineteenth century, the rice-growing Sinhalese peasantry themselves depended more on imported rice. As Bandarage (1983, p. 213) pointed out, Emerson Tennant indicated in 1848 that the native peasantry's dependence on imported rice was not restricted to periods of harvest failures due to drought or inundation, but was a habitual one. The self-identity of Sinhalese peasants and the Sinhalese as a community of people was tied up with paddy cultivation. Nevertheless, in reality a lot of Sinhalese peasants

depended on grains such as *Kurakkan* for their subsistence. Moreover, the rice-producing Kandyan peasants often had less rice to eat than Tamil estate labourers. The rice supply of the estate labourers was guaranteed as part of their wage, but the native peasants had no such guarantees for their minimum rice requirements (Bandarage, 1983, p. 214). The colonial state also neglected the irrigation which was required for the cultivation of rice, and the paddy plots of the native peasants were often expropriated for non-payment of taxes.

While Ceylon imported rice from India and Burma, regions within Ceylon such as the Batticaloa district in the Eastern Province and the Hambantota districts in the Southern Province produced a surplus of rice and exported to the planting districts (Bandarage, 1983, p. 214). However, the rice supplied from these regions met neither the rice requirement of the rest of the island nor even of the coffee estates. While analysing the procurement of rice, it is of interest that the Chettiars came to Ceylon during the development of the plantations to perform distinctive functions as financiers and traders in the colonial economy. Further, the Chettiars' economic activities straddled both plantations and villages as credit bankers to the planters, estate labourers, Sinhalese peasantry, and native capitalists. Therefore, the planters could obtain rice supplies for their labourers on credit from the Chettiars and pay them back after they received their export earnings. This situation confirmed that the Chettiars were a very significant integral part of the Ceylon plantation sector. They helped advance colonial economic interests and also extended the cash nexus into the village economy (Bandarage, 1983, p. 215). Their activities in the Ceylonese economy were included 'renting' of paddy tax, smallholder cash crop production

(particularly coffee), moneylending, and trading, particularly of rice. Therefore, the Chettiyars were able to expropriate the paddy lands of the peasants who failed to pay their paddy tax or loans as renters or creditors.

6.2.3 Poverty as a result of new economic policies

Poverty-focused policies were implemented even before Sri Lanka's independence. Some of them are reviewed in this section to examine their consequences.

6.2.3.1 Self-sufficient economy

When the British started ruling the whole country in 1815, the economy was based on subsistence agriculture, mainly paddy cultivation. In the Wet Zone, villages usually lay in valleys and plains where water was available for cultivation and in the Dry Zone, the ancient irrigation systems had become derelict and the land supported only a very sparse population. This was a subsistence economy which was modified by a limited exchange of produce on what was substantially a barter basis. On the other hand, economic activity was connected with the export trade, relying largely on cinnamon. Other important items of export were alcohols, tobacco, areca nuts, coffee and the produce of the Pearl Banks of Ceylon. However, cinnamon was the only agricultural commodity which was systematically produced for export while the others were collected from forest and village gardens. As returns for exports Ceylon obtained rice and cloth as its main imports. This feature was one of the outstanding characteristics of the Ceylonese economy. In subsequent years imported food came

to supply an ever-increasing share of Ceylon's total food requirements. Greater self-sufficiency has long been one of the main economic targets of the government (Corea, 1975, p. 56). Therefore, it is interesting to note the relatively early beginnings of dependence on imported food.

Ancient and medieval Ceylon was believed to have supported, using its own suppliers, a population larger than in the period under discussion. Although during the period of Portuguese and Dutch occupation the provinces of the Kandyan interior were cut off from the maritime regions, the former territories were always self-sufficient in food. Further, it was reported that the Kandyan country was producing a "large surplus" of rice. Food imports for the purpose of meeting the food requirements of the maritime regions were the first food imports for Ceylon (Corea, 1975, p. 56). In order to meet these food requirements, both the Dutch and the British agreed to import rice from South India. In the first two decades of the nineteenth century, an exceptionally low harvest occurred due to unfavourable weather conditions and it became essential to import rice to meet the food requirements of the general population. From this point onward, rice importation was a significant feature of trade in Ceylon. Corea noted two reasons for the decline in self-sufficiency in rice, as follows:

" First there was a decline in productivity of rural agriculture, occasioned in part by the centuries old neglect of the ancient tanks and irrigation systems and in part by the disturbance of the normal equilibrium of the rural economy caused by the successive changes in administration and taxation. Second there was the increase in population consisting, in part, of an increase in the local population assisted by improvements in medical sciences, and, in part, of the importation into

Ceylon of outsiders for service, first in military and then in the great plantations (Corea, 1975, p. 56)''.

Later, this dependence on imported food was intensified when the rise in population was assisted by continued improvements in health services and by ever-increasing immigration of labour from the mainland of India. At the same time, the efforts that had been taken to increase domestic rice productivity achieved only limited success. The establishment of coffee plantations in the interior of the country further disturbed the normal routine of rice production in those regions.

6.2.3.2 The policy of land acquisitions and poverty

The plantations impacted on the rural sector in a number of ways. First there was some encroachment by the plantations on villagers' lands. Earlier there were no land registration systems and records of the performance of personal service under the system of Sinhalese tenure were the prima facie proof of ownership. "On the British occupation of Ceylon personal service as a condition of holding land was abolished, and all land for which proof of ownership could not be produced was presumed to be crown land" (Corea, 1975, p. 67). The consequence of this law was that many villagers lost their lands.

The land reform policies of the colonial government created a group of landless people for the first time in the history of Sri Lanka. Colonial government hoped that as a result of land reform policies, labour movement would increase, enabling the

economy to absorb them in the modern plantations. However, these landless people did not want to join the plantations and became a group of people with no lands and no income. They depended on other people who had land and this was the first instance where poverty became a permanent feature of the Sri Lankan economy.

6.2.3.3 Importing of labour (Indian Tamil)

Sri Lankan plantation agriculture has long been heavily dependent on the extent and character of the available labour supply. Plantation coffee in particular requires a large, regular and well- disciplined labour supply as the harvesting period increases the demand for labour. The local Sinhalese were not willing to live and work on the plantations throughout the year. However, the planters wanted to create an estate labour force. Efforts were made by the colonial state to convert the Sinhalese peasantry into a labour force for the plantations. Failures resulted in the employment of immigrant labourers from South India. Labour, not land, was the limiting factor for production in the pre-colonial economy (Bandarage, 1983, p. 174) . Unlike in neighbouring South India, there were no landless agricultural labour castes in Kandy in Sri Lanka. The Kandyan artisan castes themselves were primarily wet-rice cultivators who possessed their own means of production and could not, therefore, be induced to become plantation labour. It was extremely difficult to create a wage-labour force for the plantations due to the elaborateness and complexity of the pre-colonial division of labour. One English writer mentioned the labour scarcity in Sri Lanka as follows:

“In England the study of the statesman is to find employment for the poor; while in Ceylon the difficulty is to find poor to employ. England has not sufficient land to produce food for its manufacturing people; while Ceylon has not sufficient labouring population to cultivate the soil for English capitalists and has none to spare for manufacturing purposes (Bandarge, 1983, p. 175).”¹²⁰

Due to this labour shortage, the unreliability, costliness, and alleged rebelliousness of Sinhalese labour were constantly contrasted with the merits of South Indian labour by British planters in Ceylon. According to Gunnar Myrdal “foreign labourers isolated in unfamiliar surroundings were more docile, more easily organized for effective work and were permanently attached. The advantage of cheap, non-unionized foreign labour was not limited to the European plantations and mines in the 19th Century, but in farms and factories (Bandarge, 1983, p. 195).

6.2.4 Rice ration policy in Sri Lanka

Many developing countries attempt to assist poor households to develop their nutritional intakes through direct or indirect income transfers (Edirisinghe, 1987, p. 7). Sri Lanka had had many years of universal suffrage by the time of independence. Also, the Second World War had a significant influence on development, food policy, and food subsidies. Specifically, food-related transfer payments were a direct legacy of World War II. A rice ration was commenced in deficit areas in 1948; the rice ration

¹²⁰ J. Steuart, Notes on Ceylon and its Affaires During a Period of Thirty eight years Ending in 1855, quoted in Ralph Peris, “Society and ideology”, p.81, In Bandarage ,1983, p.175

in Sri Lanka (subsidy on rice) was introduced as a result of the food shortages that occurred during World War II. This project was launched as a poverty alleviation policy by the government after independence. Under this project, consumers were able to buy food on a rationing basis¹²¹. Other than rice, wheat flour, sugar, curry materials, and milk were also distributed on a rationed basis. However, due to fluctuations in the price of imported rice the ration and subsidies were changed to make matters easier for consumers.

6.2.4.1 Other commodity rations

The Sri Lanka Freedom Party (SLFP)¹²² reaffirmed the role of a consumer-oriented food policy by emphasizing systematic economic development, with socialization of productive resources to help the poor and middle classes directly since 1956, The Sri Lankan poor benefited through the reduction of rice and sugar prices, along with increasing health and unemployment benefits. By the election in 1960, welfare-oriented policies were reaffirmed and distributional policies were adopted while continuing welfarism.

6.2.4.2 Budget deficit and food subsidies

In 1940s and 1950s, the country had the means to finance welfare schemes due to its population and the availability of foreign exchange and rupee resources. However, since the 1960s, demographic, social and economic changes have occurred.

¹²¹ Rice was rationed on the basis of 1.5 measures per week per worker, 1 measure for a child, 0.75 measures for an infant and 1.25 measures for others (Mahaligasivam, 1978).

¹²² The United National Party (UNP) which ruled until 1956 was defeated by the SLFP in the 1956 election.

Government expenditure on food subsidies and other welfare activities caused a re-examination of welfare expenditure (Karunatilake, 1987, pp. 190-230). The expenditure on subsidies (rice), education and health caused a higher government budget deficit in this period. Particularly, in the early 1970s the restoration of the rice ration to wheat flour pounds caused a sharp increase in welfare expenditure in relation to capital expenditure in Sri Lanka.

6.2.5 Redistribution policies of post-independence period

Although it took a significant period of time to see the effect of the political transformation of independence, it contributed to changes in major areas of policy making, strategies and implementations within the economy. Mostly, independence greatly increased the sensitivity of policy formulation to meeting peoples' aspirations (Karunatilake, 1987, p. 206). Sri Lanka invested a significant part of its resources in social welfare programmes, prioritizing those for food rations and food stamps, education and health services. Thus, it is important to examine how these welfare programmes and social policies have affected the development of the country by reducing poverty.

The roots of social progress in Sri Lanka go back to before independence in 1948 and to some extent to its British heritage. Food rationing was started in 1942; primary education became nominally compulsory in 1901 (Isenman, 1980, p. 238). Accordingly, the foundation of the emerging Sri Lankan welfare state strongly

resembled the British welfare state, viz., Education, National Insurance and National Health (Kelegama, 2004, p. 412; Marshall, 1973).

“With the achievement of independence in 1948, Sri Lanka adopted a new Westminster style constitution in 1948, modelled on the British constitution. From the outset, the newly independent Government of Sri Lanka embraced the welfarism it had inherited from the late colonial state, and proceeded to develop the welfare state on the basis of the earlier social policy initiatives. The Sri Lankan welfare state was built mainly around three major social documents, the Education Act of 1945, the establishment of Social Services 1948, and the health Act of 1953. In this regard, the foundations of the emerging Sri Lankan welfare state bear comparison with the ‘three pillars’ of the British welfare state, viz., Education, National Insurance and National Health (Marshall, 1973)”

Although there was free health care and free education before independence, they were only for certain groups of people. However, after independence these policies were activated with the aim of redistributing all welfare facilities to cover the whole country. During the first two decades of independence (1948-1968) social expenditure related to education, health, transport, food subsidies and public welfare assistance were around 40 per cent of total public expenditure (10-12 per cent of GDP) (Kelegama, 2004, p. 413). However, successive governments’ commitment to continuing the policies of providing welfare services for essential foodstuffs, (particularly rice), free education, free medical care and subsidised prices for transportation and housing, was a major obstacle, limiting government expenditure on investment at a high level. As a result of this very high welfare expenditure, the budget deficit increased significantly.

6.2.5.1 Free education policy

Despite attempts at educational reforms dating back to pre-independence, Sri Lanka has essentially followed the British education system¹²³ with the only changes being the medium of instruction; Sinhala and Tamil (Isenman, 1980, p. 238). However, the Kannangara Report (1943) which recommended a system of universal and compulsory free education from Kindergarten to University, confirmed that welfarism in Sri Lanka was based on universal principles (Kelegama, 2004). All educational policies of this period were highly significant and opened doors for greater social mobility through equal opportunities in education to all irrespective of their income level and social status. This opened access to occupations such as medicine and law which were previously monopolized by the Western-educated middle class. In addition, people from rural areas and the underprivileged had the opportunity to engage in all types of employment available in Sri Lanka. Thus, although the benefits of free access to education are difficult to quantify, it has made a significant contribution to social and economic mobility¹²⁴ in Sri Lanka, and also contributed substantially to achievements in the fields of health, fertility reduction and agriculture by improving productivity (Karunatilake, 1987, p. 204). Comparatively, the social impact of free education has been more widespread than is generally believed. By giving the opportunity for at least one member of a family to

¹²³ The curriculum of this education system was focused primarily on the academic needs of the small minority going beyond secondary level education rather than on the development-oriented learning needs of the majority. An educated unemployment problem arose, indicating that marginal social returns on the expansion of secondary education were low (Isenman, 1980).

¹²⁴ Adult literacy rose from 58 per cent in 1946 to 86 per cent in 1984. Of those in the age group 20-24 years, in 1971, 71 per cent of men and 64 per cent of women had at least some education beyond the initial four years of primary education. Twenty-six per cent of both men and women had at least a secondary school education (Karunatilake, 1997)

find a good job with a steady income, free education has significantly contributed to equitable income distribution in both in urban and rural areas.

6.2.5.2 Free health care policy

The entire Sri Lankan population has had the opportunity to receive comprehensive free health care under the national health policy of Sri Lanka since the 1950s. Successive governments have allocated reasonably high amounts for health; on average 6% of total government expenditure until the 1970s (Karunatilake, 1987, p. 206). Thus, Sri Lanka is privileged to have one of the lowest death rates in the developing world. The infant mortality rate has also fallen considerably. Improvements in medical care have contributed to high life expectancy for both men and women in Sri Lanka. In 1946, the life expectancy for a male was only 43.9 years: it had risen to 67.5 years by 1984 (Karunatilake, 1987, p. 206) and had risen to 76.15 years by 2013¹²⁵. The life expectancy for females has been consistently higher than that for males.

6.2.6 Agriculture reforms and colonization

Sri Lanka's agricultural sector comprises four broad subsectors. They are the plantation sector which mainly produces tea, the domestic sector dominated by paddy, and the forestry and fisheries sectors. Although independence did not mark a

¹²⁵ http://www.indexmundi.com/sri_lanka/demographics_profile.html

new era of agricultural policies, the agricultural policies adopted after the Donoughmore Constitution of 1931 continued to dominate Sri Lankan agriculture (Sanderathne, 2004, pp. 195-212). These policies were aimed at self-sufficiency in food (mainly rice) through land settlement of the Dry Zone. Colonization of the Dry Zone was the major development programme even before the 1930s, comprising agricultural development, land settlement, provision of irrigation and food production (Uduporuwa, 2007).

There were other factors which influenced agricultural policy formulation in the post-independence era: a belief in agricultural fundamentalism, a failure of land reforms and the increasing influence of multilateral international agencies since 1977. The most important development policy after independence was for agriculture. One of the first development plans to improve agriculture was the Six Year Programme of Investment, 1954-55 to 1959-60. A considerable amount of expenditure was directed towards a wide variety of programmes with the purpose of using the surplus from the export sector to improve agriculture in Sri Lanka (Karunatilake, 1987).

With the change of government in 1956, policies were directed to the welfare of the people, particularly rural low income earners who had received scant consideration before then. Then the Ten Year Plan was prepared, aiming, through agricultural development, to address the main issues of increasing food import bills, excessive dependence on plantations and rising rural unemployment. The strategy was to increase export earnings by increasing agricultural productivity and quality.

The Paddy Land Act of 1956 was the first significant policy for supporting peasant agriculture after Sri Lanka's independence. Next, the Agricultural Development Proposal for 1965-70 was formulated by the Ministry of Agriculture and Food, with specific agricultural development objectives such as increasing domestic production and reducing dependence on imports (Karunatilake, 1987, p. 64). In the field of domestic agriculture, priority was given to paddy cultivation with the primary object of import substitution. New land and appropriate irrigation facilities were provided under the Agriculture Development Proposal (ADP) and further support was given with respect to high-yielding varieties of paddy seeds, fertilizer and uncultivated lands.

6.2.7 Import substitution policy and poverty in Sri Lanka

Import substitution refers to a set of ideas about why mass poverty¹²⁶ has prevailed and continues to prevail in many countries while other countries have grown rich, and about a general approach to the elimination of that poverty (Bruton, 1998, p. 904). Thus, import substitution was considered as one of the earliest general strategies of development, which prevailed in many developing countries in the 1950s and 1960s. Sri Lanka also tried import substitution policies as a poverty reduction and development strategy in this period.

¹²⁶ The explanation of mass poverty is generally found in the structure of production—mainly the dominance of agricultural and mineral activities—in low-income countries, and in their inability, because of their structure, to profit from international trade (Bruton, 1998, p. 904)

6.2.7.1 Industrialization policies

As a first attempt, with the purpose of providing facilities for industries in the private sector, an industrial estate was established at Ekala under the Industrial Estate Corporation in 1959 (Karunatilake, 1987, p. 101). This model industrial estate followed the pattern of similar estates in other countries such as India, Singapore and Malaysia. There were four main Zones in this estate. Two of them were designed to provide facilities for small and medium scale (SMEs) industrial units, and the other two were for larger industries and for non-compatible¹²⁷ industries.

Industrialization policies created substantial employment opportunities in Sri Lanka as industrial employment expanded rapidly in the period from 1961 to 1963, with total employment rising by nearly 30 per cent (Karunatilake, 1987). Nearly two-thirds of this increase was due to the expansion of industries such as garment manufacture, miscellaneous food preparation, miscellaneous chemical products, and the manufacture of biscuits and confectionary. Within five years from 1965, employment opportunities in the industrial sector increased by 50 per cent, and the total number of employees increased by almost 90 per cent from 56,835 in 1965 to 103,726 in 1969 (Karunatilake, 1987).

¹²⁷ Non compatible industries are those industries such as tanneries, manufacture of cement goods and other similar enterprises that have to be isolated because of excessive noise, dust, or other hazards.

6.2.7.2 Impact of import substitution policies

Twenty years of import substitution policies in Sri Lanka indicated a relatively strong bias against agriculture, especially export-oriented agriculture¹²⁸. The economic reforms of 1977 encouraged traditional exports by reducing export taxes on the primary export crops: tea, rubber and coconuts. Tax rates declined from 40 to 50 per cent to 10 to 20 per cent within ten years after the reforms. However, the small farm sector benefitted much more than the commercial crops sector. Due to the tax changes, tea production improved marginally while rubber production has declined continuously since 1990.

6.2.8 Rural development schemes in Sri Lanka

After political independence in 1948, Sri Lanka paid more attention to developing the socio-economic status of the rural sector population, which had been neglected by the colonial rulers. After the 1970s the country's development agenda focused on regional development. Successive governments after independence were highly focused on national planning¹²⁹ as a development strategy. A heavy rural bias in national planning and policy making could be seen in the early 1970s in Sri Lanka as the bulk of the electorates were rural. With the view of political gain, a larger share of the budget was allocated to rural development in this period. In the period 1971-1975 the total allocation varied between 44 and 50 per cent (Karunatilake, 1987, p. 62).

¹²⁸ See for more information <http://www.fao.org/docrep/003/t0800e/t0800e07.htm#b9-Sri%20Lanka>

¹²⁹ Those governments implemented several national plans such as the Ten Year plan (1959) and the Five Year Plan (1970), targeting whole-island spatial sectoral development (Uduporuwa, 2007).

These allocations were further increased from 1977 onwards under development projects such as the Mahaweli River Development project.

6.2.9 Open economic policy in Sri Lanka

The government elected in 1977 introduced a comprehensive package of economic reforms which almost reversed the economic policies prior to liberalisation, and paid considerable attention to regional development through a growth-oriented development approach. The new economic policies were directed towards transforming the economy from a state-controlled one to one in which the private sector led and market forces determined the direction. With these open economic policies the government launched three major projects to achieve regional development. They were the Greater Colombo Urban Development Project, the Free Trade Zones Project, The Mahaweli Development Project and the One Million Housing Project (Uduporuwa, 2007). In 1978, Integrated Rural Development Projects were also introduced to cope with rural sector problems.

6.2.9.1 Removal of ration system

The post-liberalisation economic policies were prioritized for growth rather than redistributive policies. The food stamp programme was initiated to minimize hardships caused by food scarcity in the Second World War period in Sri Lanka.

However, this programme was extended by successive governments, as there were significant numbers of people below the poverty line. Before open economic policies, this programme covered almost all the population without any restrictions. In 1975, an income criterion was introduced to select eligible people for the programme. Further, beneficiaries were affected by limiting the free food ration to families whose income fell below a cut-off point. This system halved the number of beneficiaries recognised as poor¹³⁰.

6.2.9.2 From welfare state to market economy

Since independence, Sri Lanka has experienced a significant series of economic policy changes targeting economic development. Like most developing countries, in the 1980s Sri Lanka introduced policy reforms to shift away from a state-centred economic regime, following the trends set by Margaret Thatcher in the UK and Ronald Reagan in the US in the late 1970s (Kelegama, 2004, p. 363). Privatization, which had a direct bearing on Sri Lanka's development path, was a part of the economic reforms in Sri Lanka, and the country gained the reputation of being the most vigorous among the South Asian nations in adopting the privatization process.

Many State Owned Enterprises (SOEs) were loss-making and plagued with problems of overstaffing, mismanagement and corruption, inefficient procurement systems,

¹³⁰ See this article on rural poverty in Sri Lanka:
http://www.unescap.org/rural/doc/beijing_march97/sri_lanka.PDF

excessive government intervention and politicization. Liberalisation brought a little change to the status quo. Particularly, with the start of the second wave of liberalisation in 1989, these loss-making public enterprises became unsustainable with budgetary transfers (Kelegama, 2004, p. 365). Thus, privatization was formally announced for the first time as a state policy in Sri Lanka in 1987 with the purpose of easing fiscal burdens and enhancing the efficiency of enterprises by the infusion of private sector norms. To analyse whether privatization supports economic development in Sri Lanka, it is important to examine carefully why successive governments have chosen privatization as a development strategy in Sri Lanka and whether they have achieved their expectations.

The abolition of government monopoly and private sector-led development policies and the abolition of the welfare state had serious repercussions on the poverty alleviation efforts of previous governments. Until the introduction of liberalized economic policies the government used state monopoly and state sector institutions as a redistribution strategy. The products and services of these institutions were available for the economy with subsidized prices in order to avoid price escalations. The thinking behind these policies was that government institutions are for the public service and not for profit. Price increases after liberalisation had serious impacts on the redistribution pattern of the economy.

6.2.10 Systematic poverty alleviation programmes

Almost all nations implement community-based food and nutrition programmes, as food insecurity and the level of nutrition of the poor have acquired importance within the context of poverty reduction strategies. Welfare approaches may not be the best in the long run as they create dependency and unwillingness to develop and build on indigenous coping strategies (Ismail, Immink, Mazar, & Nantel, 2003, p. 10). However, Sri Lanka has a long history of social programmes which were based on the social welfare of the poor. Although there were poverty-focused programmes before independence in 1948, the systematic poverty alleviation programmes were initiated after independence. However, they did not aim at poverty reduction at an individual level, but instead, focused on redistribution.

By examining the efforts which have been made in poverty reduction in Sri Lanka since its independence, better policy initiatives can be introduced to deal with the fundamental issue of poverty. The statement below shows that Sri Lanka paid significant attention to the problem of poverty and inequality even before independence. It launched a number of welfare programmes to help the poor:

“Government preoccupation with poverty, inequality, and welfare goes back to the 19th century when sectarian conflicts forced the colonial government to intervene in the health and education sectors. The grant of universal franchise in 1931 and the influence of Marxist politics since the 1930s have ensured that this preoccupation remains largely in place (Gunatilaka, Wan, & Chatterjee, 2009, p. viii)”.

The post-liberalisation era has experienced continued social conflicts that emerged as a result of poverty and inequality in Sri Lanka. Nevertheless, despite various civil conflicts hampering economic development as well as devastating public resources, Sri Lanka has experienced significant poverty reduction with the help of various welfare programmes launched by successive governments.

“The government increased expenditure on health and education and initiated other programs to increase consumption and self-employment among the poor. The old food stamps scheme was replaced by the Janasaviya (Self-Help) Program, a targeted income transfer program. Credit facilities were provided through the World Bank-funded Janasaviya Trust. The government also sought to bridge the development gap between the urban and rural areas by providing incentives for industries to locate in rural areas. Following a change of government in 1995, the Janasaviya Program was replaced by the Samurdhi (Prosperity) Program, consisting of a small rural infrastructure component and a large income transfer component, and a series of pro-poor credit schemes including the Grameen-type Samurdhi Bank scheme (Gunatilaka et al., 2009, p. viii).”

Sri Lanka has a long history of social programmes as they play an important role in poverty reduction. Almost all the social programmes which have been implemented since independence are welfare-based financial support programmes, particularly food subsidies. Generally, welfare programmes such as *Food Stamps*, *Janasaviya* and *Samurdhi*, help the poor to compensate for basic consumption expenditure levels. The first welfare programme in food subsidy was initiated during World War II. With open economic policies this programme was replaced by a food stamp scheme in 1979 (Tudawe, 2001). The food ration scheme was phased out in a number of stages. Nearly 50 per cent of the population was included in the first stage, even though it was restricted to those who earned below Rs.300/= per month. However,

due to increases in the number of recipients in each issue (once every three months), the government stopped issuing stamps in 1980. In addition, the real value of the stamps dropped by half from 1978 to 1982.

6.2.10.1 Janasaviya programme

“*Janasaviya*” is a Sinhalese word that means “people’s strength.” The *Janasaviya* poverty alleviation programme was started in 1989 with the objectives of short term income supplementation and long term employment generation to enhance the welfare of the poor (Tudawe, 2001). The core of the programme is the idea that popular participation is an essential feature, initially in the alleviation of poverty, and ultimately in its elimination. Thus, this programme is considered an interface between a state of poverty and its absence. This programme has promoted a range of activities such as human capital development, income generation, and infrastructure activities focusing on the asset base of the poor. There were several components including low interest credit schemes, nutrition programmes, and small-business establishment within the *Janasaviya* programme. Households were included in the programme for a period of two years, with an allowance of 2500/= rupees per month. Half of the allowance needed to be invested in a self-employment venture while the other half was available for consumption purposes.

Statistics available until the 1981/82 financial year indicate that there was a huge disparity between the top 20 per cent and the bottom 20 per cent of income earners. While the bottom 20 per cent of income earners received 4.85 per cent of the national

income, the top 20 per cent received 51.8 per cent of the national income (Marasinghe, 1993, p. 14). Thus, the *Janasaviya* programme was introduced as a means to narrow the income gap between the top 20 per cent and the bottom 20 per cent of income earners, with the objective of empowering the poor. The programme had three components. The first was to increase consumption and the nutritional status of poverty-affected people by giving financial support. The second was to provide financial assistance for investors. The third was to initiate an awareness drive in order to encourage attitude changes in the poor.

6.2.10.2 *Samurdhi* Scheme: Institutionalization of poverty alleviation

Samurdhi (prosperity) is the largest social welfare programme which was introduced with the aim of restructuring the welfare programmes to provide relief while empowering poor households in Sri Lanka. This is presently operating as the largest state-sponsored microfinance programme for the poor. When the new government came to power, *Janasaviya* was replaced by the *Samurdhi* Programme in 1995, which has remained in place until now. Although the main purpose of these programmes was almost similar, the *Samurdhi* programme attempts to encourage poor people to initiate a source of income through micro credit programmes with the assistance of *Samurdhi* Banks. The programme claims nearly one per cent of GDP or roughly half of all welfare expenditures, excluding the costs of education and health, and is the largest welfare programme presently operating in the country (Glinskaya, 2003, p.

1)¹³¹. This programme has three main components. The first is the provision of consumption grants (food stamps) which consumes 80 per cent of the total *Samurdhi* budget for selected poor families/eligible beneficiaries. The second is a savings and credit programme which is for entrepreneurial activity and business development, operated through the Samurdhi Banks. The third is rehabilitation and development of community infrastructure through social development programmes.

Apart from the *Samurdhi* programme, the current government is making a tremendous effort towards poverty reduction through various rural development programmes aimed at community development and livelihood improvement, such as *Gemidiriya* (Village Strength), *Maganeguma*, and *Gamaneguma*, targeting low-income rural populations. The World Bank commented on *Gemidiriya* as a community development and livelihood improvement project of 12 years' duration, which has improved the quality of rural lives:

"The development objective of the proposed 12-year program for the Community Development and Livelihood Improvement "Gemidiriya" Project for Sri Lanka is to enable the rural poor to improve their livelihood and quality of life. The objective of the proposed first four-year phase of the program would be to enable the communities of Uva and Southern provinces to build accountable and self-governing local institutions and to manage sustainable investments by: (i) devolving decision-making power and resources to community organizations; (ii) strengthening selected local governments which demonstrate responsiveness and accountability to rural communities; and (iii) working with federations of village organizations, the private sector and non-governmental organizations (NGOs) on economic empowerment to increase the size and diversity of livelihood options. The project comprises the following five components: Component 1, Village Development, strengthens village organizations (VOs) and funds priority sub- projects. Component 2, Institutional Strengthening, builds the capacity of local and national agencies and supports organizations to respond to community demands. Component 3, Innovation Seed Fund, pilots innovative ideas that need experimentation, learning and incubation. Component 4,

¹³¹ For further details see <http://siteresources.worldbank.org/INTDECINEQ/Resources/SamurdhiJune042003.pdf>

*Project Management, facilitates overall coordination, implementation, and management of the project. (v) Component 5, Village Self-Help Learning Initiative Pilot, completes implementation of the on-going pilot in Polonnaruwa district. ”*¹³²

Maganeguma is a rural road development programme initiated in 2004 under the Ministry of Highways, Ports and Shipping. However, compared to the other social welfare programmes aimed at public welfare in Sri Lanka, “The Samurdhi Poverty Alleviation Programme” is the largest ever government-sponsored poverty alleviation programme. This programme is aimed at empowering households to combat poverty through Island-wide coverage and via separate institutions as follows:

i. Samurdhi Authority

The Samurdhi Authority in Sri Lanka is an institution which is involved in achieving the objective of creating a prosperous Sri Lanka where poverty is at a minimum. The basic objectives of the Authority, incorporated under parliamentary Act No. 30 of 1995 (Samurdhi Authority, 2010), are the planning and implementation of the ‘mobilization of youth, women and disadvantaged groups for economic and social development activities, the promotion of their social stability and the eradication of poverty.’

ii. Samurdhi Bank

The Samurdhi Bank programme is a novelty to this welfare programme compared to other social welfare programmes launched since independence. This Bank programme has been added with the expectation of improving the savings habits of low income households who are Samurdhi beneficiaries, generating their capital

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<http://web.worldbank.org/external/projects/main?pagePK=104231&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P074872>

needs and creating a profitable financial institution to minimize irregular loan transactions¹³³. The Samurdhi Bank network is the foremost institution in the micro-financial field in Sri Lanka. Samurdhi Banks have been established and maintained at the Divisional Secretariat level on the basis of the number of Grama Niladhari (GN) Divisions¹³⁴.

6.2.11 Newly initiated poverty reduction programmes

Although the anti-poverty programmes that are discussed above were implemented by investing considerable resources, the outcomes of those programmes were not commensurate with the investments. Gemidiriya Community Development and the Livelihood improvement project were initiated as a new approach and policy framework for long term poverty reduction in Sri Lanka with the assistance of the World Bank in 2004 (Samaraweera, 2010, p. 60). This project is successfully supporting loan borrowers and they are investing 100 per cent of their loans for income generation; 93 per cent of them increased their income in the agricultural sector. However, the absence of a proper and constant market is the main threat for the villages that are operating under this programme.

¹³³ See

http://www.samurdhi.gov.lk/web/index.php?option=com_content&view=article&id=100&Itemid=78&lang=en

¹³⁴ With a view to ensuring an administrative system at a rural level on par with public policies, the Grama Niladhari Division, which is part of the Home Affairs Division of the Ministry of Public Administration and Home Affairs, implements all administrative functions of Grama Niladhari, performing their duties in 14,022 GN Divisions under 331 Divisional Secretary's Division all over the island. For more information see: (http://www.pubad.gov.lk/web/index.php?option=com_content&view=article&id=82&Itemid=173&lang=en).

6.2.12 Conclusion

The information presented in this Chapter indicates that the problem of poverty originated in Sri Lanka in the 19th century by creating a landless group with the importation of Indian Tamil labour for the plantation sector and importing rice for labourers. Before the colonial period Sri Lanka had a subsistence economy and produced enough food to feed its own population. However, with the introduction of a modern economy in the place of a self-sufficient economy, Sri Lanka experienced poverty as a major social and economic problem. Importation of rice, labour and capital has created an environment where poverty is a major feature.

Sri Lanka has introduced various social and welfare programmes in both the pre- and post-independence periods in order to alleviate poverty and assist the poor via redistribution programmes. Free education, a free health system and food subsidies via a ration system were the main components of the redistribution policy. Despite the heavy burden it created on the fiscal management of the country, the government which was in power was able to maintain this welfare system for a long period without interruption. Therefore, Sri Lanka was able to reduce its death rate and the incidence of malnutrition, and increase life expectancy, adult literacy and school attendance under these policies, when compared to other developing countries. Sri Lanka's welfare system was available to all citizens, without an income ceiling. Interestingly, even the richest groups in society received all the benefits of free education and health programmes and the rice ration system.

With the introduction of liberalized economic policies, Sri Lanka was able to redirect its welfare policies more toward low income groups. Systematic poverty alleviation programmes targeted at people below the poverty line were introduced in place of a universal welfare system. The Janasaviya and Samurdhi programmes were solely targeted at the poor segment of the population.

As a result of these programmes, Sri Lanka was able to reduce the poverty level of the population significantly. However, Sri Lanka needs a special poverty reduction programme for the rural sector as this sector has the highest poverty rate in the country (Figure 3.2). I examined the poverty profile, poverty determinants and their behaviour over time and over economic sectors, as well as poverty-related issues and limitations in Chapters Three, Four and Five. I have discussed poverty-focused policies initiated since the colonial period and their limitations and the impact on poverty reduction in Sri Lanka in Chapter Six, with a view to obtaining relevant policy lessons about conceptual and measurement issues of poverty in Sri Lanka. The experience accumulated through this study allowed me to devise the following policy needs and preliminary recommendations for poverty reduction in Sri Lanka.

6.3 Policy needs and preliminary recommendations for Sri Lanka

6.3.1 Policy recommendations for poverty reduction in the rural sector

Poverty determinants in Sri Lanka were examined in Chapter Three and it was found that education and remittances (both local and international) have contributed positively to poverty reduction in the last two decades. Quantile regression results

demonstrated that remittances have played an important role in poverty reduction in Sri Lanka, regardless of the income quantile, since 1990. Although national poverty has reduced significantly, the rural sector, which consists of 16.3 million of the total population of 20.3 million (DCS, 2011, p. vii), is the predominantly poverty-affected sector in Sri Lanka.

There have been enormous efforts to alleviate poverty since independence. However, all of the programmes were welfare-based and did not focus on specific income groups. As the poverty measures listed in Chapter Five demonstrate, the rural diversified income stratum¹³⁵ is the most poverty-stricken group. Because most of the Sri Lankan poor households depend on the wages of unskilled labour and transfers, specially-designed poverty reduction strategies need to be focused mostly on this income stratum of the population. There is also an urgent need for the country to focus on marginal areas containing the income groups that were most affected by nearly 30 years of civil war, which hindered their development. Creating solid sources of income for this stratum is challenging for poverty reduction.

There are significant numbers of female-headed households in Sri Lanka, which have increased due to the three decades of brutal civil conflict. In 2001, 20.1% of households (814,725 households) were female-headed households¹³⁶ and this had increased to 23% (1.2 million households) by 2010 (DCS, 2011, p. vii). Further, the results of Chapter Three and the studies of Ranathunga and Gibson (2014; 2015)

¹³⁵ This income group consists of households without a reliable source of income. They have different sources of income such as farming activities, non-farming activities, and receiving remittances. However, they do not have specific sources of income compared to other strata, which I have decomposed based on the main source of income in Chapter Five.

¹³⁶ See http://www.statistics.gov.lk/PopHouSat/Hos_Chra.asp

demonstrate that female-headed households are more likely to be poor in Sri Lanka. Therefore, specially designed poverty reduction programmes are essential for female-headed households.

Sri Lanka needs long term strategies/investment programmes for poverty reduction while having short run initiatives/welfare-based programmes to empower the poor. Some preliminary recommendations for upgrading the living conditions of the diversified income groups are provided below.

6.3.1.1 Need for a panel database of households in Sri Lanka

Although Sri Lanka has conducted household surveys (HIES) once every five years since 1981 and once every three years since 2009/10, it has not developed a panel data set as the sample differs in each survey year. Hence, predicting the real poverty picture of the country is impossible. Thus, Sri Lanka has a need for a nationally representative panel database for HIES for poverty analysis. Sri Lanka attempted the first sample survey representing the whole of Sri Lanka¹³⁷ after the civil conflict in the 2009/10 HIES; thus, this is the ideal time to start a panel database, referring to the same sample for the next survey years, taking 2009/10 as a milestone. If this survey is planned annually, it will capture time variations in the poverty profile along with annual changes in poverty determinants, which will lead to rigorous poverty analysis and support for policy recommendations.

¹³⁷ Before then Sri Lanka did household surveys excluding the North and the East due to the civil conflict and thus did not represent the whole country.

6.3.1.2 Regional poverty reduction programmes focusing income strata

According to the findings of the Chapter Five, Sri Lanka needs to have specially designed poverty reduction programmes for different income groups, particularly for the diversified income groups. At the same time, exploring the available resources of each region will support better policy implementations.

6.3.1.3 Effective professional education programmes for school leavers and dropouts

According to the poverty determinants, education plays a major role in poverty reduction in Sri Lanka, regardless of the sector or the expenditure quantile. Himaz and Aturupane (2011) made the same point in their study. Fair reallocation of facilities for education¹³⁸ in each sector/province/ district will support getting poor families above the poverty line through better employment opportunities.

Initiating vocational training centres attached to schools or other educational bodies for school leavers in rural communities is essential when focusing on this target group. This can be implemented in several stages as indicated in Figure 6.3 or by developing the existing vocational training centres systematically and giving market-

¹³⁸ There is an uneven resource allocation for education in Sri Lanka. Specifically, educational institutions/schools in main regions/ cities receive larger proportions of resources while those in rural areas gain very limited amounts of resources. At present there are a lot of programmes under “*Mahinda Chinthana*” to bring resources to village level.

oriented training targeting poverty alleviation through skilled employment in local and foreign labour markets. Vocational Degree Programmes (VDP) should be affiliated to the national universities and developed for subject streams that can be marketed and thus absorb many school leavers and dropouts in Sri Lanka. These centres need proper coordination and the courses need to be regularly revised according to labour market requirements. According to Vollmann (2010, p. 57) Technical and Vocational Training and Education (TVTE) policies do not meet the identified challenges in rural areas in South Asia. He emphasized that the majority of adolescents are left out, without the relevant skills to enter the job market, as a result of the mismatch between small city-based and formal Technical and Vocational Training and Education centres and the large number of young applicants. Therefore, decentralized adequate vocational training centres are needed, which provide skills matching the labour market requirements.

6.3.1.4 Specially focused research and development programmes for the North and East

Specially designed annual poverty assessment programmes are needed for the North and East, especially the resettlement areas for war-affected people, for designing effective poverty reduction programmes. Updating the poverty profile, and close examination of the poverty situation, poverty determinants and resource availability in these areas are important to enable a clear understanding of the problem of poverty and to allow effective reduction strategies to be implemented. For instance, if the main causes of poverty and the available resources in a particular area can be

identified, policy makers would be able to design effective poverty reduction programmes for the area. Therefore, more research is needed for these areas to explore poverty related issues and earning opportunities.

6.3.1.5 Improvement of existing welfare programmes

According to the results of the field survey of rural-to-urban labour migration, welfare programmes like *Samurdhi* need to be reformed as the benefits of these programmes are not enjoyed by the actual people in need. Firstly, the selection procedure for beneficiaries should be unbiased and not be politicized. Secondly, these financial benefits should not just be a survival strategy but should lead to income generation strategy in the long run. Each family should be targeted for a fixed period of time (e.g. two or three years) until they initiate a source of income for the household. Further, rural micro-credit programmes¹³⁹ should be improved, including management services to support the poor to start SMEs in the rural sector.

¹³⁹ “Over the last two decades, the outreach of microfinance providers to formerly unbanked people increased tremendously. Through better adapted financial products and continuous innovation and learning, many Micro Finance Institutions (MFIs) were able to improve their efficiency and as a result have become operationally and financially sustainable while reaching out to a large number of people. All this has contributed to the fact that microfinance is often seen as a sustainable means to reach the Millennium Development Goals (MDGs), such as ending poverty and hunger.” (Czura, 2010)

6.3.1.6 Converting welfare based poverty alleviation strategy to investment based strategy

Although welfare-based poverty reduction programmes have existed since independence, it is now time to shift from welfare-based poverty reduction programmes to investment-based poverty reduction programmes which, in the long term, encourage the wellbeing of poor families by giving them stable income diversification. This is because post-war Sri Lanka is initiating significant development programmes with a view to achieving higher levels of development in all regions. Facilitating the setting up of small to medium business using their own resources would lift household economies out of poverty. For example, if a household is engaged in farm activities, they may initiate a business such as a vegetable shop or a meat shop, using their farm products in the nearest town or trading their products in larger cities, catering to the needs of urban consumers.

6.3.1.7 Bottom-up development planning for Local Governments

At present Local Governments in Sri Lanka do not have poverty alleviation programmes. The tasks performed by them are limited to certain types of infrastructure development and day-to-day work such as cleaning the city. However, their institutional setup can be used to introduce poverty policies and implement them, taking into consideration the poverty situation in their locality. Local Governments have the ability to work more closely with local populations than does Central Government.

Throughout the history of poverty reduction processes in Sri Lanka, it has been clear that Local Governments were not involved directly, as Central Government considered the policies should be implemented by itself and not by Local Governments. Local government acts¹⁴⁰ of Sri Lanka do not make any provisions for them to engage in poverty reduction activities directly. However, Local Governments are the institutions which are close to the local community and can easily identify the poverty-stricken people in the community on whom attention should be focused.

Therefore, in association with the awareness programmes for rural development, the services of the village heads (*Grama Niladhari*) and other officials who are located at grassroots level need to be re-examined. There is a need for “bottom-up” planning to identify the needs of the poor. In this regard, local governments need to take more responsibility for working out proper development plans identifying the real needs of the poor and the resource availability of the area, while also avoiding political biases. Each Local Government needs to have an effective five year plan to alleviate poverty in its area. This should be very carefully designed after a proper survey of the area and should include the identification of resource availability and the requirements of the area.

¹⁴⁰ The Local Government System consisted of Municipal Councils, Urban Councils and *Pradeshiya Sabhas* which are governed by three main laws: Municipal Councils Ordinance (1947); Urban Councils Ordinance (1939); and the *Pradeshiya Sabhas* Act (1987). The Local Government carries out regulatory and administrative functions, promotes public health and sanitation and environmental sanitation, and maintains public thoroughfares and public utility services. http://www.pclg.gov.lk/en/sub_pgs/about_us_4.html

6.3.1.8 A systematically developed long-term welfare programme to empower the extremely poor

A comprehensive study is needed to identify the disabled and those who are too old to earn in extremely poor households in the rural sector, in general and within the diversified income group in particular. This should be followed by a specially designed welfare programme to cover their day-to-day needs such as food and medicine. For instance, community development centres are needed for these people to receive financial and moral support. The Government can encourage charity organizations and NGOs for these purposes while interacting directly through rural development and welfare bodies in the country. In order to obtain the services of these organizations, the government can have a participatory approach, by asking them to be stakeholders in the process. These organizations can engage in the processes of policy formation, implementation and awareness campaigns if they are considered partners in the poverty alleviation process.

6.3.2 Rural-to-urban migration as a strategy for rural development and poverty reduction in Sri Lanka

Although rural-to-urban labour migration has increased remarkably since the late 1970s, there has been no national survey on rural-to-urban labour migration in Sri Lanka as yet. There is a dearth of detailed studies on rural-to-urban labour migration due to a lack of national data, which results in inadequate policy planning. Hence, this

section focuses on possible policy initiatives for the development of rural-to-urban labour migration as a strategy for rural development in Sri Lanka.

As Laczko (2008) stated, linkages between internal migration and development have been ignored partly due to lack of data. Therefore, there is an urgent need to make temporary rural-to-urban migration an integral part of the national policy perspectives and planning, particularly for rural sector development in Sri Lanka. Rural development and poverty reduction necessarily require household-level income diversification strategies. Hence, migration¹⁴¹ is a better strategy for rural farm households to diversify household income as the remittances work as insurance for these families. Rural-to-urban labour migration is a more convenient strategy than international migration as the majority of rural farm families are unable to afford the cost of international migration. According to my field survey of Thalpathwewa village (Box 6-1), respondents indicated that they really need alternative sources of income for survival and to reduce the risk of credit issues, as they are not secure with farming activities. Due to lack of irrigation water and infrastructure facilities, they have selected migration as an alternative income strategy for the family. Although negative effects are associated with labour movement from the agricultural sector in general and for small farm households in particular, it is nevertheless very helpful in alleviating credit constraints and as an alternative strategy for improving the wellbeing of farm families in rural villages. International migration for employment

¹⁴¹ Chapter Three's findings demonstrate that households which receive international or local remittances are less likely to be poor in Sri Lanka. Further, it concludes that remittance plays the most significant role in poverty reduction in Sri Lanka in the estate sector. Hence migration, both local and international, leads to poverty reduction in the rural sector in Sri Lanka. See Appendix 14 for the number of employment opportunities in the EPZ.

is one of the primary focus areas of development, economic and employment policies, and is also a highly discussed and heavily researched area in Sri Lanka. However, rural-to-urban labour migration, which has a significant impact on the economy, particularly on rural community development, has not been the subject of research concern and policy discussions in Sri Lanka as yet.

Rural-to-urban labour migration has a significant impact on the development of farming communities¹⁴² in Sri Lanka. Rural-to-urban labour migration can be used as a source of income for the diversified income group as it does not have an initial cost for them as compared to international migration. Further, remittances can be taken as insurance by the migrant-sending households. Thus, rural-to-urban labour migration can be promoted as a strategy for income diversification and poverty reduction. Several policy initiatives are needed for steady growth of the local migration process aiming at rural community development.

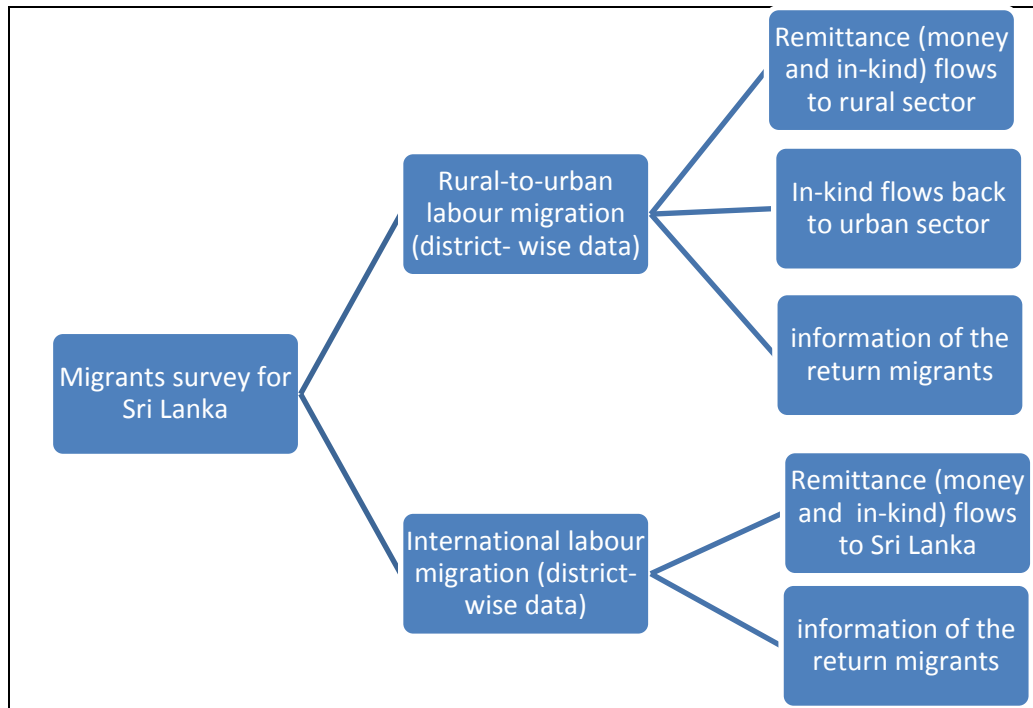
6.3.2.1 Need for a systematic migrant survey in Sri Lanka

The survey findings of Chapter Four indicated the need for a systematic island-wide data base for rural-to-urban migrant workers and remittances for the policy implications for poverty reduction in Sri Lanka. To fill this need, there should be a well-planned migrant survey for Sri Lanka. This can be either an extension to the Labour Force Survey or the HIES, or a separate migrant survey focusing on information from both international and local (rural-to-urban) migrants and return

¹⁴² Refer to Chapter Four

migrants. The following preliminary framework can be proposed for a detailed migrant survey.

Figure 6-2: Preliminary framework for Migrant Labour Survey (MLS) for Sri Lanka



Source: Compiled by the author

6.3.2.2 Adding a new chapter for rural-to-urban labour migration by reviewing the national labour migration policy in Sri Lanka

The Ministry of Foreign Employment Promotion and Welfare has recently developed a national labour migration policy for Sri Lanka with technical assistance from the International Labour Office (Ministry for Foreign Employment Promotion and Welfare, 2008; Wickramasekara, 2011). However this focuses only on migrant

workers¹⁴³ and their families with respect to citizens who are employed in foreign countries. As far as Sri Lanka is concerned, it does not have a local migration policy as yet. Hence, based on the information from the recommended migrant survey discussed above, a rural-urban labour migration policy needs to be developed, focusing on rural community development in Sri Lanka. Provision of encouragement and support for skill migration through vocational training can be considered as a policy level decision by the government. It is necessary for the policy to consider workers' job security and other facilities and provide support for their families. Thus, it can be considered an extension to the national labour migration policy.

I found in my survey conducted in the FPZ that there was inadequate attention to worker remuneration, job security, and welfare facilities. Hence, the Board of Investment (BOI) needs to work out ways to support migrant workers to settle in the cities and assure them job security. Special attention should be paid to food, accommodation, health and recreational facilities for these workers. Thus, under a rural-to-urban migration policy, factory workers' benefits could be improved.

¹⁴³A "migrant worker" refers to a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national" (International convention). This includes both documented and undocumented workers, and permanent and temporary migrant workers from Sri Lanka, and migrant workers from foreign countries working in Sri Lanka. The National Policy elaborated here covers only national workers migrating for employment overseas in keeping with the mandate of the Ministry of Foreign Employment Promotion and Welfare.

"Families of Migrant Workers" refers to dependents of migrant workers, and includes but is not confined to spouses, children, parents and extended family members (Ministry for Foreign Employment promotion and Welfare, 2008)

6.3.2.3 Systematic improvements in the out-migration process

According to the findings from Chapter Three, the poverty determinants in Sri Lanka indicate that there is a considerable impact from remittances on poverty reduction in the estate sector compared with the other two sectors. Hence, the migration process needs to be streamlined with respect to rural livelihoods. Promoting skill migration and ensuring job security are important aspects of the migration process. The government can launch labour mobility agreements with foreign countries to create more opportunities while also encouraging foreign investors to locate businesses in Sri Lanka, aiming at local migration and the reduction of regional disparities.

6.3.2.4 Effective micro-credit programmes for local migrant families

According to the findings of the Chapter Three, families where the head is engaged in self-employment are more likely to be poor in Sri Lanka. Thus, especially designed poverty reduction programs are needed for these families. Micro-credit programmes have a history more than three decades long as a key policy in poverty alleviation and rural development. Beginning with the efforts Professor Muhammad Yunus in Bangladesh in the late 1970s, these rural credit programmes began to spread rapidly throughout all developing countries, focusing on the reduction of poverty, unemployment and vulnerability of the poor (Bateman, 2011). Although Sri Lanka is considered a high-ranking country regarding microfinance penetration¹⁴⁴ and micro

¹⁴⁴ Sri Lanka's global ranking on microfinance penetration in 2009 was 6th (Gonzalez, 2010).

credit programmes, still there is a need for well-established micro-credit programmes offering management know-how, especially for the rural diversified income group which is the most poverty-affected segment of the population in Sri Lanka as observed in the Chapter Five. Existing micro-credit programmes can be developed focusing on families involved in rural-to-urban migration. Then, the left-behinds of the migrant families can start small businesses as a secure livelihood strategy (promoting diversity) and return-migrants can also join these businesses, avoiding the problems often associated with return migration. The Government can support them by giving them low interest loans and by offering grace periods in which to build up their business before repayments start or by offering loans with no guarantees/sureties¹⁴⁵.

Most of the migrants and their families spend more on consumptive purposes such as durable goods (furniture, gold, and electric items) and housing, because they do not have proper guidance in managing their earnings. They need advice on how to utilize remittances more for productive investment with multiplier effects rather than for consumptive purposes. For example, they need help to start a small business using the particular resources in their areas and their remittance money. For instance, a household can start a small business by selling their agricultural products if they can buy a small vehicle. Another approach might be for each household to buy milking cows or keep one or two other animals to get an extra income or provide extra nutrients for family members while easing the cost of living.

¹⁴⁵ This is one of the most critical factors for those who apply for loans for small business in rural communities in Sri Lanka despite political desires.

Rural families can also buy new technological instruments which can be used for cultivation purposes and then can rent out those to others to earn an extra income. However, most of the farmers and farm families need to have proper guidance to be able to do these things. It is the responsibility of the Local Government Officials in each area to conduct awareness programmes and follow them up, while providing support via banking facilities as an initial step to cover the cost. Banks can be assured of repayments on the loans as these families have migrant workers with a regular income.

6.3.2.5 Encourage to locate a diversified group of factories in the rural sector

According to the rural to urban migrants survey information in Chapter Four, relocation of different groups of factories benefits rural workers who do not like to migrate to urban sectors to find employment opportunities. Although only garment factories have been decentralized to the rural sector, it does not provide enough opportunities and benefits relative to urban factories for the population in the rural sector. This relocation will help not only the rural poor, but also reduce urban poverty and other problems related to migrant populations in cities. However, this will also affect the indirect employment opportunities associated with factory workers in urban areas, such as boarding houses and small shops to some extent. Nevertheless, the overall benefit is likely to be higher as there are enough opportunities in the cities for these affected groups of people to find other sources of income.

6.3.2.6 Re-establish an export-led handloom industry in Sri Lanka

Studies on female migrant workers have pointed out that these families are more likely to be victims of the migration process (Ukwatta, 2010). In particular, the education of children and other social links in migrant families are affected by the migration of married females. Thus, for married females, work opportunities should be created in the areas where they reside. Some time ago, the handloom industry¹⁴⁶, where thousands of female workers were employed, was a good source of income for rural females in Sri Lanka. Although the handloom industry has been overtaken by the Free Trade Zones which entered as a result of liberalisation, still there is a considerable potential¹⁴⁷ to re-establish the handloom industry because of the booming tourism industry in Sri Lanka after the cessation of civil conflict. Re-establishment of the industry will provide immense support for those rural female workers who can migrate neither internationally nor locally due to household activities and responsibilities, and the high cost of migration. This industry can be promoted with a new face, targeting both the export market and the local market by improving the quality of the products -“high quality local product”- as changing lifestyle patterns have created a big demand for such products in Sri Lanka now.

¹⁴⁶ The Handloom Textile Industry in Sri Lanka has a centuries-old history. This industry is a highly labour intensive, export-oriented, rurally based industry. The industry provides a livelihood for a large number of households in the country particularly in the South, Central and Eastern Provinces (<http://www.thefashioncircle.com/glance-articles/handloom.php> access date 29th July 2014)

¹⁴⁷ The Textile Training Institute (TTI) operating under the purview of the Textile Department of Sri Lanka conducts handloom textile training courses aiming to provide the technical skills required for the future success of the handloom industry. Russel de Mel (Chief Executive in NDB) stated that they “hope to begin the restoration of the handloom industry with a view to make it a self-reliant, thriving industry in Sri Lanka, while encouraging the younger generation to take up the profession by bridging the gaps across the industry and academia. There is a growing demand for authenticity around the globe today and environmentally responsible products such as handloom textiles are becoming increasingly popular....” Further he emphasised that the handloom textile industry can be a precursor in SME development in Sri Lanka (Ceylon today, 2013) (www.ceylontoday.lk/22-33617-news-detail-weaving-new-hope-for-sri-lankan-handloom-industry.html). Access date 27/09/2014

6.3.2.7 Build up a good image for the female workers in the FTZs

Although factory workers are contributing immensely to manufacturing sector growth while helping rural communities to improve their livelihoods, society still does not treat the women who work in the factories with respect. Since the early stages of the FTZs, there has been a bad label for women workers in these factories, who are called “Juki girls.” This has created enormous problems for them, particularly in terms of marriage prospects. Female migrant respondents in my survey repeated this problem and asked me not to inform their villages that they were working in these factories during my visits. An urgent attitudinal change is needed from the public in order to respect these workers who are directing the Sri Lankan economy in terms of rural development and/or export-led economic development. There should be programmes to raise awareness of the value of their service to the country or/and awareness programmes about the contribution of FTZs to the economy to encourage public admiration of their service. It is the responsibility of the media, academia, and other research institutions to create a better picture by acknowledging their immense contribution to the country’s economy. Also, an improved image will help to ease the problem of labour shortages, which is one the most critical problems factories are now facing in Sri Lanka.

Chapter 7: Conclusions

7.1 *Introduction*

This thesis focused on the poverty impact of economic policy changes in Sri Lanka, particularly in agricultural trade liberalisation, after the second wave of trade liberalization. Three key areas of analysis were covered before turning to a discussion of associated policy insights. First, the factors determining poverty in Sri Lanka were explored, including how they have behaved over time, over sectors and over expenditure deciles since the second wave of economic liberalisation. The recent history of poverty determinants were examined using HIES data from 1990 to 2010, using four national surveys conducted by the Sri Lankan Department of Census and Statistics. Second, the economic impact of rural-to-urban temporary labour migration on sending communities was considered, paying particular attention to the economic gains of migration and the determinants and usage of remittances in rural farming communities focusing on the present poverty situation in the rural sector. Thirdly, the study analysed the impact of agricultural trade liberalisation on poverty in Sri Lanka, by developing a GTAP-POV framework that used HIES 2006/7 data and the GTAP version 8.1 database focusing on future poverty reduction prospects.

7.2 *Insights from the literature*

Literature relevant to the poverty impact of agricultural trade liberalisation in Sri Lanka was presented in Chapter Two, along with material relevant to the analyses conducted in this thesis. The literature review indicated that it is not appropriate to

draw general, *a priori* conclusions on the impact of trade reforms. For example, the impact of trade liberalisation depends upon the current structure of the economy and the extent of the reforms, as well as the nature of vulnerable households in a particular country. Although there are a considerable number of studies which have attempted to examine the impact of agriculture reforms on poverty and inequality, there remain significant gaps in the literature for countries such as Sri Lanka.

Many international agencies, policy makers and academics have advocated closer integration of rural producers/local farmers and the agricultural sector of developing countries with national and international markets: this is believed to provide a vital route for rural populations to escape the cycle of poverty. The Sri Lankan literature is very sparse on analysis of the poverty and inequality impacts of agriculture trade liberalisation. In recent years, there has been increasing interest in the importance of detailed household survey analyses, along with field surveys to better understand poverty impacts of policy changes. The potential contribution of CGE analysis to improved understanding of the impacts of policy changes has also been a theme in recent literature. It was to these areas of the literature that the current study aimed to contribute.

7.3 *Key findings of the analysis*

7.3.1. Poverty determinants in Sri Lanka and their behavior

To understand the poverty profile and poverty changes in Sri Lanka after the second wave of economic liberalisation as a platform for the main analysis, Chapter Three focused on the changes in micro-level poverty determinants over time, over sectors, and over expenditure deciles from 1990 to 2010, using HIES data. The estimated probit regression results showed that almost all the coefficients of the poverty determinants were significantly different from zero at the 95 per cent confidence level or above. In particular, the results indicated that the major determinants of household poverty in Sri Lanka are human capital-related factors, which can be linked to the labour market. This was a common finding for each sector and expenditure quantile in Sri Lanka. Increasing the level of education of the head of the household and the education of other family members was generally found to decrease household poverty in Sri Lanka irrespective of the sector and expenditure quantile¹⁴⁸. Notably, both international and internal remittances have influenced household poverty reduction in Sri Lanka significantly during the two decades, with the 2009/10 results in particular confirming that local remittances have contributed tremendously to poverty reduction in the estate sector. Further, quantile regression shows that remittances played a significant role in poverty reduction in the higher expenditure quantiles. Even though poverty in Sri Lanka had been reduced tremendously by 2010, female-headed households, irrespective of sector, remained more likely to be in

¹⁴⁸ However, a positive relationship was found between education of the head of the household and household poverty in the estate sector for the year 2010.

poverty. In comparison to the rural and estate sectors, urban sector female-headed households are more likely to be poor. Comparatively, urban dwellers (both men and women) have a lower probability of being poor in Sri Lanka, regardless of the expenditure quantile.

The change in poverty was also decomposed into a growth effect and distributional effect based on the poverty headcount ratio, the poverty gap index and the severity of poverty in Sri Lanka, using HIES data for 1990/91 and 2009/10. Results confirmed that the significant poverty reduction in Sri Lanka is mostly accounted for by the increase in mean consumption of the households.

7.3.2. Economic impact of rural to urban labour migration

Chapter Three demonstrated that local and foreign remittances have led to poverty reduction in Sri Lanka within the last two decades, especially in the estate sector. Chapter Four thus focused on rural-to-urban migration and remittances, because there have been many studies on international migration and remittances in Sri Lankan history, but there is a dearth of studies in the field of rural-to-urban labour migration. Chapter Four included a field survey conducted by the author to examine the economic benefit of rural-to-urban labour migration and its impact on rural sending communities in Sri Lanka. This survey indicated that individual migrants' income gains from migration varied on average between 4000 to 9000 rupees per month in Sri Lanka. Migrants who shift from agricultural sector jobs to factory jobs are the

highest income gainers in rural-to-urban migration, while individual income gain in the urban sector is rewarded by years of schooling and work experience in contrast to the rural sector. Although the chances to engage in international migration are limited due to cost factors, internal migration is an alternative way out of poverty for any household with surplus skilled or unskilled labour. Internal migration is more supportive in the long term, as migrants can spend longer periods in their jobs than is the case with international migration.

The determinants of remittances in this study indicated that although rural-to-urban labour migration and remittances support consumptive purposes in general, investment is not altogether neglected as migrants tend to remit for educational purposes if there are students in the household of origin. Remittances are also made to assist farming practices. While households are more likely to receive regular remittances for daily expenses than for investment, migrants have contributed significantly to asset accumulation (including vehicles and land) in their communities of origin.

7.3.3. Poverty impact of agricultural trade liberalisation

To explore the impact of future trade liberalisation on poverty, a GTAP-POV modelling framework was developed and used in Chapter Five. The analysis of poverty and poverty elasticities for specific income groups (over seven income strata) represented a new dimension for poverty analysis in Sri Lanka, which can generate

insights into the current situation as well as the future impacts of policy changes on poverty in Sri Lanka. The GTAP-POV modelling results suggest that multilateral agricultural trade liberalisation reduces poverty most significantly and that agricultural liberalisation is a very important component of this. However, even if multilateral liberalisation is not possible, unilateral reductions in tariffs by Sri Lanka may also lead to substantial levels of poverty reduction, again with agricultural liberalisation being a particularly important component. In contrast, comparatively bilateral trade agreements such as ISFTA are likely to have smaller impacts on poverty reduction for Sri Lanka.

7.3.4. Poverty reducing policies in Sri Lanka

According to the literature, the origin of the current poverty problem in Sri Lanka can be traced to the 19th century, with the importation of Indian Tamil labour for the plantation sector and thus the creation of a landless group. However, with the move away from a self-sufficient economy to a more modern and open economy, poverty remains a major social and economic problem. With the introduction of open economic policies, Sri Lanka redirected its welfare policies more toward low income groups. Systematic poverty alleviation programmes, which were targeted at people below the poverty line, were introduced in place of the universal welfare system. As a result of welfare programmes such as *Janasaviya* (1989) and the *Samurdhi* (1995) programme, solely targeted to support the poor segment of the population, Sri Lanka has been able to reduce poverty levels in the population significantly within the last

two decades. However, there is a dearth of investment-based poverty reduction programs in Sri Lanka.

7.4 *Limitations of the current research and possible future directions*

While endeavouring to analyse the poverty impacts of agricultural trade liberalisation and economic policy changes in Sri Lanka after the second wave of economic liberalisation, the current study has a range of limitations. Some limitations of particular note include constraints on the household survey data used, the boundaries of the field survey undertaken and the shortcomings of the GE modelling database.

Since there was a civil war in Sri Lanka for nearly three decades until 2009, most of the household surveys (HIES) conducted in this period excluded the North and East provinces or some parts of these provinces. Thus, there is no data included for the North and East provinces in the survey data sets until 2009/10 and appropriate caution is needed when analysing results and generalisations from them.

The rural-to-urban labour migration survey undertaken for this work was limited to Gampaha District, where the largest EPZ in Sri Lanka is located. However, due to restrictions imposed by the factories, time and funding factors, a limited sample of 400 respondents was interviewed. Thus this survey is exploratory in nature, with further work needed to ensure that the findings can be generalised to the whole of Sri Lanka.

The GTAP-POV framework used the most recent GTAP version 8.1 database, benchmarked to 2007, along with 2006/7 HIES data. While it is hoped that the key insights generated still hold, these data may not fully represent the current situation in Sri Lanka.

In terms of future directions, there are many opportunities for research to build on the current platform. For example, with respect to poverty analysis, this research can be expanded by including new poverty determinants which affect regional poverty in Sri Lanka (using a field survey to collect data) and identifying resource availability in the region. Specially, analyses of how poverty determinants change between districts or over the Administrative Government Agent (AGA) divisions are important for poverty alleviation in the rural sector. Poverty changes could also be viewed more clearly by developing a panel data set for each region separately.

The impact of return migrants on poverty and rural development in Sri Lanka could be more broadly focused using nationally representative surveys. Furthermore, a comparative analysis of internal and international migration would generate further insights into which gives the best poverty reduction while minimising the social consequences.

There are a number of ways in which the CGE model can be further-developed, for example by incorporating migration/remittance and more detailed labour categories to further explore the poverty impact of policy changes in Sri Lanka.

7.5 *Concluding remarks*

Although there are many studies in the field of poverty, trade liberalisation and migration in Sri Lanka, there is a dearth of empirical studies on the changes in micro-level poverty determinants, the economic impacts of rural-to-urban migration and detailed poverty analysis of agricultural trade liberalisation. This study contributed by adding new insights in the above three different sectors. Firstly it has added new insights into poverty determinants and their behaviour over time and sectors. Secondly, this study adds to the literature on migration history in Sri Lanka by adding new insights into the economic gains of rural-to-urban migration and the use of remittances. Finally, it introduces a GTAP-POV framework incorporating household survey data and GTAP v8.1 data. A defining feature of this study was its division of the households clustered around the poverty line into seven income strata and its analysis showing the numbers of individuals able to move out of poverty in each stratum due to agricultural trade liberalisation.

References

- Abuka, C. A., Atingi-Ego, M., & Opolot, J. (2007). The impact of OECD agricultural trade liberalization on poverty in Uganda *IIIS Discussion Paper No. 208*
- Adepoju, A. (1998). Linkages between internal and international migration: the African situation. *International Social Science Journal*, 50(157), 387-395.
- Aguiar, A., Walmsley, T., & Carrico, C. (2014). Improving the Representation of the US in the MyGTAP Model with the Disaggregation of Labor and Households¹.
- Ahmed, S., Ahmed, V., & Sohail, S. (2010). Trade agreements between developing countries: a case study of Pakistan-Sri Lanka free trade agreement.
- Ahmed, S. A., Diffenbaugh, N. S., & Hertel, T. W. (2009). Climate volatility deepens poverty vulnerability in developing countries. *Environmental research letters*,
- Akinlo, A. E., & Aremo, G. A. (2013). The effect of trade liberalisation on some selected poverty indicators in Nigeria (1980-2009): Generalised Method of Moments (GMM) Approach. *American Journal of Economics*, 3(5), 199-209.
- Alkire, S., & Foster, J. (2011). Understandings and misunderstandings of multidimensional poverty measurement. *The Journal of Economic Inequality*, 9(2), 289-314.
- Alkire, S., & Santos, M. E. (2010). Acute multidimensional poverty: A new index for developing countries. *United Nations development programme human development report office background paper*(2010/11)
- Amarasinghe, U. (2005). Spatial clustering of rural poverty and food insecurity in Sri Lanka. *Food Policy*(30), 493-509.
- Amemiya, T. (1981). Qualitative response models: A survey *Journal of Economic Literature*, 19(4), 1483-1536
- Anderson, K. (2004). *Agricultural trade reform and poverty reduction in developing countries* (Vol. 3396): World Bank Publications.
- Anh, D. N. (2005). Enhancing the Development Impact of Migrant Remittances and Diaspora: The Case of Viet Nam. *Asia Pacific Population Journal*, 20(3), 111.
- Aredo, D., Fekadu, B., & Workneh, S. (2007). Trade liberalization poverty and inequality in Ethiopia: A CGE Micro simulation. *PEP working paper*,
- Atamanov, A., & Van den Berg, M. (2010). Rural non-farm activities in Central Asia: a regional analysis of magnitude, structure, evolution and drivers in the Kyrgyz Republic.
- Athukorala, P. (1990). International contract migration and the reintegration of return migrants: the experience of Sri Lanka. *International Migration Review*, 24(2), 323-346.
- Athukorala, P. (2006). Outward- oriented policy reforms and industrialization: The Sri Lankan Experiences. *South Asian Development*, 1(1)
- Athukorala, P., & Jayasuriya, S. (1994). *Macroeconomic policies, crisis and growth in Sri Lanka, 1969-90*. Washington DC: World Bank.

- Athukorala, P., & Rajapathirana, S. (2000). *Liberalization and industrial transformation: Sri Lanka in international perspective*. Delhi: Oxford University.
- Athurupane, H. (1998). *Education and poverty in Sri Lanka* (Technical report for a policy frame work for poverty reduction in Sri Lanka). External Resource Department, Ministry of Finance and Planning, Colombo
- Atkinson, A. B. (1987). On the measurement of poverty. *Econometrica*, 55(4), 749-764.
- AZAM, M. N. (2014). Structural Change and Chow Test: Revisited. *Global Journal of Quantitative Science*, 1(4)
- Baldwin, R. E. (2004). Openness and growth: what's the empirical relationship? *Challenges to globalization: Analyzing the economics* (pp. 499-526): University of Chicago Press.
- Bandarage, A. (1983). *Colonialism in Sri Lanka: the political economy of the Kandyan Highlands, 1833-1886*: Colombo, Sri Lanka: Lake House Publishers.
- Bandarge, A. (1983). *Colonialism in Sri Lanka*: Lake house investments Ltd, Sri Lanka.
- Banerjee, B. (1984). The probability, size and uses of remittances from urban to rural areas in India. *Journal of Development Economics*, 16(3), 293-311.
- Bangura, Y., & Larbi, G. A. (2006). *Public sector reform in developing countries: capacity and challenge to improve service*: New York, NY: Palgrave MacMillan.
- Bannister, G. J., & Thugge, K. (2001) International trade and poverty alleviation. *IMF Working Paper*. Wasginton DC: International Monetary Fund.
- Bateman, M. (2011). Microfinance as a development and poverty reduction policy: is it everything it's cracked up to be?
- Baulch, B. (2006). The New Poverty Agenda: A Disputed Consensus (Editorial). *IDS Bulletin* 37(4), 82-90
- Bharadwaj, A. (2014). Reviving the globalization and poverty debate: effects of real and financial integration on the developing world. *Advances in Economics and Business* 2(1), 42-57. doi:10.13189/aeb.2014.020107
- Bhatta, S. D., & Sharma, S. K. (2006). *The determinants and consequences of chronic and transient poverty in Nepal*: Chronic poverty research centre (CPRC).
- Bigman, D., & Fofack, H. (2000). Geographical targeting for poverty alleviation: An introduction to the special issue. *The World Bank Economic Review*, 14(1), 129-145
- Boccanfuso, D., Decaluwe, B., & Savard, L. (2008). Poverty, income distribution and CGE micro-simulation modelling: Does the functional form of distribution matter? *The Journal of Economic Inequality*, 6, 149-184.
- Boccanfuso, D., & Sevard, L. (2007). Poverty and inequality impact analysis regarding cotton subsidies: A Mali-based CGE micro-accounting approach. *Journal of American Economics*, 16(4), 629-659.
- Booth, C. (1892). *Life and labour of the people of London*. London: Macmillan.
- Bouet, A. (2006). *What can the poor expect from trade liberalization?* Washington DC.: International Food Policy Research Institute

- Bouët, A. (2008). *The expected benefits of trade liberalization for world income and development: Opening the "black box" of global trade modeling*. Washington, D.C.: International Food Policy Research Institute
- Bouguignon, F., & Morrisson, C. (2002). Inequality Among World Citizens: 1820-1992. *American Economic Review*, 92(4), 727-744.
- Bourguignon, F. (2003). The growth elasticity of poverty reduction: explaining heterogeneity across countries and time periods. *Inequality and growth: Theory and policy implications*, 3, 26.
- Bradshaw, T. K. (2006). Theories of poverty and anti-poverty programs in community development, . *RPRC Working Paper No. 06-05*
- Brooks, J. (2003). Agricultural trade reform, adjustment and poverty: mapping the linkages. In OECD (Ed.), *Agricultural trade and poverty: making policy analysis count*.
- Brooks, J. (2012). *Agricultural policies for poverty reduction*: CABI.
- Brown, R. P. C. (1997). Estimating remittance functions for Pacific Island migrants. *World Development*, 25(4), 613-626.
- Bruton, H. J. (1992). *The political economy of poverty, equity and growth: Sri Lanka and Malaysia*. New York: Oxford University Press.
- Bruton, H. J. (1998). A reconsideration of import substitution. *Journal of Economic Literature* 36(2), 903-936.
- Burfersher, M. E. (2011). *Introduction to computable general equilibrium models*. New York, NY: Cambridge University Press.
- Bussolo, M., Hoyos, D. R., & Medvedev, D. (2009). *Global income distribution and poverty in the absence of agricultural distortions*. World Bank. Retrieved from <https://www.gtap.agecon.purdue.edu/resources/download/3768.pdf>
- Cameron, A. C., & Trivedi, P. K. (2010). *Microeconometrics using stata* (Revised ed.). Texas, USA: Stata Press.
- Campbell, E. K. (2010). The role of remittances in Botswana: Does internal migration really reward sending families? *Population, Space and Place*, 16(2), 151-164.
- Central Bank of Sri Lanka. (2012). *Annual Report*. Colombo: Central Bank of Sri Lanka
- Chandrasiri, G. W. J., & Samarakoon, L. (2008). *Spatial patterns and geographic determinants of poverty in Sri Lanka: linking poverty mapping with geoinformatics*. Paper presented at the Asian Conference on Remote Sensing (ACRS) Colombo, Sri Lanka
- Cheema, S., & Rondinelli, D. A. (1983). *Implementation of decentralization policies: An introduction*. Beverly Hills, CA: Sage Publications.
- Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica: Journal of the Econometric Society*, 591-605.
- Cicowiez, M., Diaz, B. C., & Diaz, B. E. (2008). *The impact of global and domestic trade liberalization on poverty and inequality in Argentina*. Paper presented at the GTAP 11th Conference, Helsinki
- Clemens, M., A. (2011). Economics and emigration: Trillion-dollar bills on the sidewalk? *Journal of Economic Perspectives*, 25(3), 83-108. doi:10.1257/jep.25.3.83
- Cockburn, J. (2001). Trade liberalisation and poverty in Nepal: A computable general equilibrium micro simulation analysis. *Cahier de recherche*, 01-18.

- Cockburn, J. (2002). Trade liberalisation and poverty in Nepal: A computable general equilibrium micro simulation analysis. *The Centre for the Study of African Economies Working Paper Series*, 170.
- Conway, T. (2004). *Trade liberalisation and poverty reduction*. (CNTR 03 4777). London Overseas Development Institute
- Corea, G. (1975). *The instability of an export economy*. Colombo: Marga Institute.
- Cornia, G. A. (1999). *Liberalization, Globalization and income distribution. Research paper 157*. World Institute for Development Economics Research (UNU/WIDER)
- Cororaton, C., Cockburn, J., & Corong, E. (2005). Doha scenarios, trade reforms, and poverty in the Philippines: A CGE analysis. *PEP-MPIA Working Paper No. 2005-03*
- Coudouel, A., Hentschel, J., S. , & Wodon, Q., T. (2002). *Poverty measurement and analysis*. Washington D.C: World Bank
- Datt, G. (1998). Computational tools for poverty measurement and analysis. *FCND Discussion paper*
- Datt, G., & Gunawardane, D. (1997). *Some aspects of poverty in Sri Lanka*: World Bank.
- Datt, G., & Jolliffe D. (1999). Determinants of poverty in Egypt:1997 (IFPRI, Washington:
- Datt, G., & Ravallion, M. (1990). Regional disparities, targeting, and poverty in India. *Working papers*,
- Datt, G., & Ravallion, M. (1992a). Growth and redistribution components of changes in poverty measures. *Journal of Development Economics*, 38, 275-295.
- Datt, G., & Ravallion, M. (1992b). Growth and redistribution components of changes in poverty measures* 1:: A decomposition with applications to Brazil and India in the 1980s. *Journal of Development Economics*, 38(2), 275-295.
- Davis, E. P., & Sanchez-Martinez, M. (2014) A review of the economic theories of poverty. *Discussion Paper No. 435*. London, UK: National Institute of Economic and Social Research.
- Davis, J. B. (2004). *Microsimulation, CGE and macro modelling for transition and developing economies*: WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER).
- DCS. (2011). *Household Income and Expenditure Survey - 2009/10 - Final Report* Colombo: Department of Census and Statistics, Ministry of Finance and Planning , Sri Lanka.
- DCS. (2015). *Poverty Indicators*. Department of Census and Statistics, Ministry of Finance and Planning , Sri Lanka.
- De Brauw, A., & Rozelle, S. (2008). Migration and household investment in rural China. *China Economic Review*, 19(2), 320-335.
- De Haan, A. (1999a). Livelihoods and poverty: The role of migration -a critical review of the migration literature. *The Journal of Development Studies*, 36(2), 1-47.
- De Haan, A. (1999b). Livelihoods and poverty: The role of migration a critical review of the migration literature. *The Journal of Development Studies*, 36(2), 1-47.

- De Hass, H. (2006). Migration, remittances and regional development in Southern Morocco. *Geoforum*, 37(4), 565-580.
- De la Briere, B., Sadoulet, E., De Janvry, A., & Lambert, S. (2002). The roles of destination, gender, and household composition in explaining remittances: an analysis for the Dominican Sierra. *Journal of Development Economics*, 68(2), 309-328.
- De Silva, A. (1998). *Health and Poverty* (Technical report). External resources department, Ministry of Finance and Planning, Sri Lanka
- De Silva, I. (2008). Micro-level determinants of poverty reduction in Sri Lanka: a multivariate approach. *International Journal of Social Economics*, 35(No.03), pp 140-158.
- De Silva, N., Malaga, J., & Johnson, J. (2012). Trade liberalization, free trade agreements, and economic growth: The case of Sri Lanka. *Journal of International Agricultural Trade and Development*, 08(02)
- Deaton, A. (1997). *The analysis of household surveys : A micro-econometric approach to development theory*. Baltimore: Johns Hopkins University Press.
- Deshingkar, P. (2006). Internal migration, poverty and development in Asia: Including the excluded. *IDS Bulletin*, 37(3), 88-100.
- Deshingkar, P., & Grimm, S. (2005). *Internal migration and development: A global perspective*. Switzerland:
- Devas, N. (2004). *Urban governance, voice, and poverty in the developing world*. USA: Earthscan Publication Ltd.
- DeWind, J., & Holdaway, J. (Eds.). (2008). *Migration and development within and across borders: Research and policy perspectives on internal and international migration*: International Organization for Migration (IOM) and Social Science Research Council (SSRC)
- Dollar, D. (2002). *Globalization, growth, and poverty: building an inclusive world economy*. Washington DC: World Bank and Oxford University Press
- Dudek. (2006). Determinants of poverty in Polish farmers' households-binary choice model approach. *Electronic Journal of Polish Agricultural Universities*, 9(1),
- Dunham, D., & Jayasuriya, S. (2010). Equity, growth and insurrection: liberalization and the welfare debate in contemporary Sri Lanka. *Oxford Development Studies*, 28(1), 97-110.
- Dunham, D., & Kelegama, S. (1994). *Economic liberalization and structural reforms: The experience of Sri Lanka, 1977-93*. The Netherlands: Institute of Social Studies
- Edirisinghe, N. (1987). *The food stamp scheme in Sri Lanka : costs, benefits, and options for modification*. Washington, D.C. : International Food Policy Research Institute,.
- Edirisinghe, N. (1990). Poverty in Sri Lanka: its extent, distribution and characteristics of the poor. *Paper submitted to the World Bank for the Sri Lanka Poverty Alleviation and Employment Project*. Washington, DC: World Bank
- Eelens, F., & Speckmann, J. D. (1990). Recruitment of labor migrants for the Middle East: the Sri Lankan case. *International Migration Review*, 24(2), 297-322.
- Elesh, D. (1970). *Poverty Theories and income maintenance: validity and policy relevance*. Retrieved from <http://www.irp.wisc.edu/publications/dps/pdfs/dp8370.pdf>

- Epo, B. N., & Baye, F. M. (2012). Determinants of Well-being and Poverty Changes in Cameroon: 2001-2007. *African Development Review*, 24(1), 18-33.
- Essama-Nssah, B. (2005) The poverty and distributional impact of macroeconomic shocks and policies: A review of modeling approaches. *World Bank Policy Research Working Paper* (pp. 78). Washington, DC: The World Bank.
- Estrades, C. (2013). Guide to micro-simulations linked to CGE models: how to introduce analysis of poverty and income distribution in CGE-based studies 02,
- FAO. (2005). *Poverty impacts of agricultural trade reforms*. Rome: Food and agriculture organization of the United Nations.
- FAO. (2010). World programme for the census of agriculture 2010. *volume 1*
- Fei, J. C. H., & Ranis, G. (1961). A theory of economic development. *The American Economic Review*, 51(4), 533-565.
- Foster, J., Greer, J., & Thorbecke, E. (1984a). A Class of Decomposable Poverty Measures. *Econometrica*, 52(3), 761-766.
- Foster, J. E. (1998). Absolute versus relative poverty. *The American Economic Review*, , 88(2), 335-341.
- Foster, J. E., Greer, J., & Thorbecke, E. (1984b). A class of decomposable poverty measures. *Econometrica*, 52(3), 761-766.
- Gachassin, M., Najman, B., & Raballand, G. (2010). The impact of roads on poverty reduction; A case study of Cameroon. *Policy Research Working Paper*
- Galbraith, J. K. (1979). *The Nature of Mass Poverty*. Cambridge, Mass, London: Harvard University Press.
- Geeganage, A. (2013). Sri Lanka's Role in the World Trade Organization. *Journal of Social and Development Sciences*, 4(2), 47-60.
- Gerard, F., & Piketty, M.-G. (2007). *Impacts of agricultural trade liberalization on poverty: sensitivity of results to factors mobility among sectors*. Paper presented at the Pro-poor development in low income countries: Food, agriculture, trade, and environment, EAAE, France
- Gibson, J., McKenzie, D., & Stillman, S. (2009). The impacts of international migration on remaining household members: omnibus results from a migration lottery program. *The Review of Economics and Statistics*(0)
- Gibson, J., & Rozelle, S. (2003). Poverty and access to roads in Papua New Guinea. *Economic development and cultural change* 52(1), 159-185.
- Gilbert, J. (2008). Agricultural trade reform and poverty in the Asia Pacific: A survey and new results *Working Paper* (ESCAP).
- Gilbert, J., & Banik, N. (2010). Socioeconomic impacts of cross border transport infrastructure development in South Asia. *ADB Working Paper Series*, 211,
- Glewwe, P. (1986). The distribution in income in Sri Lanka in 1969-70 and 1980-81. *Development Economics*, 28(233-46)
- Glewwe, P. (1991). Investigating the determinants of household welfare in Cote d'Ivoire. *Journal of Development Economics*, 35 307-337.
- Glinskaya, E. (2003). *An Empirical Evaluation of Samurdhi Program* (Report No 22-535-CE). Washinton DC: The World Bank
- Goldin, I., & Knudsen, O. (Eds.). (1990). *Agricultural trade liberalization: implications for developing countries*: The World Bank, Paris
- Gore, C. (2000). The rise and fall of the Washington Consensus as a paradigm for developing countries. *World Development Vol. 28*(No. 5), pp. 789-804.

- Gray, L. C., & Moseley, W. G. (2005). A geographical perspective on poverty–environment interactions. *The Geographical Journal*, 171(1), 9-23
- Greenwood, M. J. (1975). Research on internal migration in the United States: a survey. *Journal of Economic Literature*, 13(2), 397-433.
- Gunathilaka, G. (1986). *Sri Lanka, migration of Asian workers to the Arab World*, Tokyo .UNU.
- Gunatilaka, R., Chotikapanich, D., & Inder, B. (2005). *Impact of structural change in education, industry and infrastructure on income distribution in Sri Lanka* (WORKING PAPER 21/06). Monash University, Australia
- Gunatilaka, R., Wan, G. H., & Chatterjee, S. (2009). *Poverty and Human Development in Sri Lanka*: Asian Development Bank.
- Gunawardana, P. J., & Somaratne, W. G. (1999). *Economic policy regimes and non-plantation agriculture in Sri Lanka since 1970*. Facets of Development of Sri Lanka since independence: Socio-Political, Economic, Scientific and Cultural, (Economics Conference Monograph 6). Department of Economics, University of Queensland, Australia.
- Gunawardana, D. (2000). *Consumption poverty in Sri Lanka 1985-96*. External resource department, Ministry of Finance and Planning, Sri Lanka
- Gunawardana, D. (2004). *Improving poverty measurement in Sri Lanka* (MPRA Paper No 7695). Colombo, Sri Lanka: Center for Poverty Analysis (CEPA)
- Ha, W., Yi, J., & Zhang, J. (2009). *Inequality and internal migration in China: evidence from village panel data* (MPRA Paper No. 16896). UNDP. Retrieved from <http://mpra.ub.uni-muenchen.de/16896/>
- Hassine, N. B., Robichaud, V., & Decaluwé, B. (2010). Agricultural Trade Liberalization, Productivity Gain and Poverty Alleviation: a General Equilibrium Analysis. *Cahier de recherche/Working Paper*, 10, 22.
- Haughton, J., & Khandker, S. R. (2009). *Handbook on poverty and inequality*. Washington DC: World Bank.
- Herath, A. (2007). Impact of ADB projects on agricultural policies: A joint impact assesment for the Asian Development Bank. *Working paper series No.15-2007*
- Hertel, T., Ivanic, M., Preckel, P., & Cranfield, J. (2003). Trade liberalization and the structure of poverty in developing countries *GTAP Working Paper* 25,
- Hertel, T., & Keeney, R. (2010). Poverty Impacts in 15 Countries: The GTAP Model. *Agricultural Price Distortions, Inequality, and Poverty*, 119.
- Hertel, T., W., Verma, M., Ivanic, M., & Rios, A. R. (2011). GTAP-POV: A framework for assessing the national poverty impacts of global economic and environmental policies. *GTAP Technical Papers No. 31*
- Hertel, T. W. (2006). A survey of findings on the poverty impacts of agricultural trade liberalization. *Journal of Agricultural Development Economics*, 3(1), 1-26.
- Hertel, T. W., Ivanic, M., Preckel, P. V., & Cranfield, J. A. L. (2004). The earnings effects of multilateral trade liberalization: implications for poverty. *The World Bank Economic Review*, 18(2), 205.
- Hertel, T. W., Keeney, R., Ivanic, M., & Winters, L. A. (2007). Why isn't the Doha Development Agenda more poverty-friendly? *GTAP working paper*, 37

- Hertel, T. W., Keeney, R., Ivanic, M., & Winters, L. A. (2009). Why Isn't the Doha Development Agenda more Poverty Friendly? *Review of Development Economics*, 13(4), 543-559.
- Hertel, T. W., Preckel, P. V., & Reimer, J. J. (2001). *Trade policy, staple food price variability and the vulnerability of low income households* Mimeo, . Prude University.
- Hertel, T. W., & Reimer, J. (2004a). Trade liberalization and poverty: A survey.
- Hertel, T. W., & Reimer, J. J. (2004b). Predicting the poverty impacts of trade reform. *World Bank Policy Research Working Paper No. 3444*
- Hertel, T. W., & Reimer, J. J. (2004c). *Predicting the poverty impacts of trade reform* (Vol. 3444): World Bank Publications.
- Hertel, T. W., & Reimer, J. J. (2005). Predicting the poverty impacts of trade reform. *Journal of International Trade and Economic Development*, 14(4), 377-405.
- Hertel , T. W., Verma, M., Ivanic, M., & Rios, A. (2011). GTAP-POV: A Framework for Assessing the National Poverty Impacts of Global Economic and Environmental Policies. *GTAP Technical Paper No. 31*,
- Hertel , T. W., & Winters, L. A. (2005). Estimating the poverty impacts of a prospective Doha Development Agenda. *The World Economy*, 28(8)
- Hicks, J. R. (1932). *The theory of wages*. London: Macmillan.
- Himaz, R. (2008). Welfare grants and their impact on child health: the case of Sri Lanka. *World Development* 36(10), 1843-1857.
- Himaz, R., & Aturupane, H. (2011). Education and Household Welfare in Sri Lanka from 1985 to 2006. *Economics Series Working Papers*
- Hussein, Z., Hertel, T., & Golub, A. (2013). Climate change mitigation policies and poverty in developing countries. *Environmental Research Letters*, 1-10. doi:10.1088/1748-9326/8/3/035009
- Institute of Policy Studies of Sri Lanka. (2013). *Handbook on the India-Sri Lanka Free Trade Agreement*. High Commission of India, Colombo, Sri Lanka:
- Isenman, P. (1980). Basic needs: The case of Sri Lanka. *World Development* 8, 237-258.
- Ismail, S., Immink, M., Mazar, I., & Nantel, G. (2003). *Community-based food and nutrition programmes: what makes them successful*. Rome: Food and Agriculture Organization of the United Nations
- Ivanic, M. (2004). Reconciliation of the GTAP and household survey data. *GTAP Research Memoranda*
- Jacobs, J. (1969). *The economy of cities*. New York: Random House.
- Jalan, J., Ravallion, M., & Unit, P. (1998). Determinants of transient and chronic poverty: evidence from rural China. *World*
- Jeffrey, D. S., & Andrew, W. (1995). Economic reform and the process of global integration. *Brookings Papers on Economic Activity*, 1,
- Justino, P., & Litchfield, J. (2002, August 18 – 24, 2002). *Poverty dynamics in rural Vietnam: winners and losers during reform*. Paper presented at the 27th General Conference of The International Association for Research in Income and Wealth, Stockholm, Sweden
- Kageyama, A. (2008). Extent of poverty alliviation by migrant remittances in Sri Lanka. *South Asia Reseach online version*, 28(89)

- Kakwani, N. (1993). Poverty and economic growth with application to Cote d'Ivoire *Review of Income and Wealth* 39(2) doi:10.1111/j.1475-4991.1993.tb00443.x/pdf
- Kapteyan, A., Kooreman, P., & Willemse, R. (1988). Some methodological issues in the implementation of subjective poverty. *The Journal of Human Resources*, 23(2), 222-242.
- Karunatilake, H. N. S. (1987). *The economy of Sri Lanka*. Colombo: Center for Demographic and Socio-Economic Studies.
- Hector Kobbekaduwa trust Kelegama, S. (2000). Food security issues in Sri Lanka. *Hector Kobbekaduwa Felicitation Volume*.
- Kelegama, S. (2007). *South Asia in the WTO*: Sage Publications Pvt. Ltd.
- Kelegama, S. (2014). China–Sri Lanka economic relations an overview. *China Report*, 50(2), 131-149.
- Kelegama, S. (Ed.). (2004). *Economic policy in Sri Lanka : Issues and debates*. Colombo: Institute of Policy Studies
- Khan, I. M. (2009). Globalizing the trade policy. *Working paper available at SSRN*. Retrieved from org/10.2139/ssrn.1368832
- Komoto, G., & Stone, F. S. (2009). *Determining poverty impacts on Lao People's Democratic Republic and Cambodia: reconciling household and GTAP data*. ADBI
- Komoto, G., & Stone, S. (2009). Determining poverty impact on Lao people's Democratic Republic and Cambodia: Reconciliation household and GTAP data. *ADB working paper series*,
- Kuznets, S. (1971). *Economic growth of nations*: The Belknap Press of Harvard Univ. Press.
- Laczko, F. (2008). Migration and development: the forgotten migrants. In D. J. a. H. J. (Ed.), *Migration and development within and across borders: research and policy perspectives on internal and international migration* (pp. 9). New York: International Organization for Migration (IOM) and Social Science Research Council (SSRC).
- Lakshman, W. D. (1997). Income distribution and poverty. In W. D. Lakshman (Ed.), *Dilemmas of development* Association of Economists, Colombo.
- Laksman, W. D. (Ed.). (2000). *Sri Lanka's development since independence: Socio-economic perspectives and analysis*. CA Tisdell: NOVA Science Publishers.Inc
- Lanjouw, P., & Ravallian, M. (1995). poverty and household size. *The Economic Journal* 105(1415-1434)
- Lechman, E. (2013). Human poverty – measuring relative deprivation from basic achievements. A comparative study for 144 world countries in the time span 1990-2010. *Working paper series A: No 11/2013 (11)*,
- Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47-57.
- Lewis, A. W. (1954). *Economic development with unlimited supplies of labour*: Bobbs-Merrill Company, College Division.
- Li, h., & Zahniser, S. (2002). The determinants of temporary rural to urban migration in China *Urban Studies*, 39(12), 2219-2235.
- Lucas, R. E. B., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *The Journal of Political Economy*, 901-918.

- MacInnes, T., Aldridge, H., Bushe, S., Kenway, P., & Tinson, A. (2013). *Monitoring poverty and social exclusion 2013*. York: Joseph Rowntree Foundation and The New Policy Institute.
- Maertens, M., & Swinnen, F. M. J. (2009). Trade , standereds, and poverty : evedence from Senegal. *World Development*, 37(1), 161-178.
- Mahaligasivam, R. (1978). Food subsidy in Sri Lanka. *Sri Lanka Journal of Social Sciences*, 75-94.
- Mahrouf, A. R. M. (2005). *Enhancing sustainable development of diverse agriculture in Sri Lanka*. Paper presented at the CPSA working paper 83,
- Marasinghe, M. L. (1993). Poverty elimination through poverty alleviation: The Jansaviya Programme of Sri Lanka for national development. *Third World Legal Studies*, 12 Article 2,
- Marshall, T. H. (1973). Citizenship and Social Class,. In T.H.Marshal (Ed.), *Class, Citizenship and Social Development*: Connecticut, Greenwood.
- McCorriston, S., Hemming, D. J., Lamontagne-Godwin, J. D., Osborn, J., Parr, M. J., & Roberts, P. D. (2013). *What is the evidence of the impact of agricultural trade liberalisation on food security in developing countries? A systematic review*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.
- McCulloch, N. (2003). The impact of structural reforms on poverty: a simple methodology with extensions. *World Bank Policy Research Working Paper* 3124,
- McCulloch, N. A., Winters, L. A., & Cirera, X. (2001). *Trade liberalization and poverty*. London: Center for Economic and Policy Research
- McDowell, C., & Haan, A. (1997). Migration and sustainable livelihoods: A critical review of the literature. *Working Paper-Institute of Development Studies, University of Sussex (United Kingdom)*
- McKenzie, D., & Rapoport, H. (2007). Network effects and the dynamics of migration and inequality: theory and evidence from Mexico. *Journal of Development Economics*, 84(1), 1-24.
- Mendola, M. (2008). Migration and technological change in rural households: Complements or substitutes? *Journal of Development Economics*, 85(1-2), 150-175.
- Mincer, J. (1958). Investment in human capital and personal income distribution. *The Journal of Political Economy*, 66(4), 281-302.
- Ministry for Foreign Employment Promotion and Welfare. (2008). *National labour migration policy for Sri Lanka*. Colombo: Ministry for Foreign Employment Promotion and Welfare
- Mittal, S. (2007). *OECD agricultural trade reforms impact on India's prices and producers welfare*: Indian Council for Research on International Economic Relations.
- Mok, T. y., Gan, C., & Sanyal, A. (2007). The determinants of urban poverty in Malasiya. *Journal of Social Sciences*, 3(4), 190-196.
- Mudalige, U. J., & Somarathne, M. (2005). "Sri Lanka after five hundred years of western colonization and future perspectives" *10th International Conference on Sri Lanka Studies* (p. 229). University of Kelaniya: University of Kelaniya.

- Mujeri, M., & Khondker, B. (2002). *Poverty impact of trade liberalization in Bangladesh: A General Equilibrium Approach*. Paper presented at the Working paper for DFID,
- Murrugarra, E., Larrison, J., & Sasin, M. (2010). *Migration and Poverty: Towards Better Opportunities for the Poor*: World Bank Publications.
- Nanayakkara, A. G. W. (2006). *Poverty In Sri Lanka -issues and options*. Department of Census and Statistics, Sri Lanka.
- Narampanawa, R. M. A. K. B. (2005). *Trade liberalisation and poverty in a computable general equilibrium (CGE) model: The Sri Lankan case*. Griffith University, Queensland.
- Naranpanawa, A., Bandara, J. S., & Selvanathan, S. (2010). Trade and poverty nexus: A case study of Sri Lanka. *Journal of Policy Modeling*
- Naranpanawa, R. M. A. K. B. (2005). *Trade liberalisation and poverty in a computable general equilibrium (CGE) model: the Sri Lankan case*. Griffith University, Queensland.
- Narayan, A., & Yoshida, N. (2005). *Poverty in Sri Lanka: the impact of growth with rising inequality* (33259). Word Bank
- Narayan, D. (2002). *Empowerment and poverty reduction: a sourcebook*. Washington, DC The World Bank
- Network, T. W. (2006). *Globalization, liberalization, protectionism: impacts on poor rural producers in developing countries*.: IFAD
- Nicita, A. (2006). Multilateral trade liberalization and Mexican households: The effect of the Doha Development Agenda. In T. W. Hertel & L. A. Winters (Eds.), *Poverty and the WTO: impacts of the Doha Development Agenda*: Palgrave Macmillan and the World Bank.
- Niimi, Y., Dutta, P. V., & Winters, L. A. (2003). *Liberalization and poverty dynamics in Vietnam*. Paper presented at the PRUS working paper, University of Sussex
- Niimi, Y., Dutta, P. V., & Winters, L. A. (2007). Trade liberalisation and poverty dynamics in Vietnam. *Journal of Economic Integration*, 22(4), 819-851.
- Oberai, A. S., & Singh, H. K. (1980). Migration, remittances and rural development: Findings of a case study in the Indian Punjab. *Int'l Lab. Rev.*, 119, 229.
- Okurut, F. N., Odwee, J. O. O., & Adebua, A. (1999). *Determinants of regional poverty in Uganda*: Economic Policy Research Center, Makerere University Campus.
- Oxhorn, P., Tulchin, J., & Selee, A. (2004). *Decentralization, democratic governance and civil society in comparative perspectives: Africa, Asia and Latin America*. Washington. DC: . Woodrow Wilson Centre Press.
- Perera, M., Gunatilleke , G., & Bird, P. (2007). Falling into the medical poverty trap in Sri Lanka: what can be done? *International Journal of Health Services*, 37(2), 379-398.
- Perera, S. (2008). Female internal labour migration, living conditions and vulnerability: a case study of Katunayake export processing zone Sri Lanka *Academic Workshop on Migration Vulnerability and Security* (SLFI, Colombo:
- Perera, S. (2005). Patterns, determinants and consequences of Internal migration in Sri Lanka 1981-2001. *Institute of Workers's Education (IWE)Journal*, Vol.5, 76-101.

- Perera, S., Siriwardana, M., & Mounter, S. (2014). Reducing poverty and income inequality in Sri Lanka: Does trade liberalisation help? . *The Journal of Asia Pacific Economy*, Taylor and Francis Group,(Routledge), forthcoming.
- Polaski, S., Manoj, P., Ganesh-Kumar, A., & Sherman Robinson. (2007). *Policy Dilemmas in India: The Impact of Changes in Agricultural Prices on Rural and Urban Poverty*. WTO
- Pradhan, M., & Ravallion, M. (2000). Measuring poverty using qualitative perceptions of consumption adequacy. *The Review of Economics and Statistics*, 82(3), 462-471. doi:<http://www.jstor.org/stable/2646806>
- Prema-Chandra, A. (2012). Sri Lanka's trade policy: reverting to dirigisme? *The World Economy* 35(12), 1662-1686. doi:10.1111/twec.12039
- Rafeek, M. I. M., & Samarathunga, P. A. (2000). Trade liberalisation and its impact on the rice sector of Sri Lanka. *Sri Lankan Journal of Agricultural Economics*, 3(1), 143-154.
- Raman, M. (2004). *Effects of agricultural liberalisation: experiences of rural producers in developing countries*. Malaysia: The Third World Network
- Ranathunga, S., & Gibson, J. (2014). Determinants of household poverty in the rural sector in Sri Lanka: 1990-2010. *Economics*, 3(3), 43-49.
- Ranathunga, S. P. B., & Gibson, J. (2015). The factors determine household-poverty in the estate sector in Sri Lanka. *Global Business and Economics Research Journal*, 4(1), 17-30.
- Rank, M. R. (2004). *One nation, underprivileged: why American poverty affects us all*: Oxford University Press.
- Ratha, D., Mohapatra, S., & Scheja, E. (2011). Impact of Migration on Economic and Social Development. *Word bank*
- Ratnayake, R., Ratna, R. S., & Ferracane, M. F. D., Yann (Eds.). (2013). *Impacts of trade facilitation measures on poverty and inclusive growth: case studies from Asia*. Thailand: Asia-Pacific Research and Training Network on Trade (ARTNeT)
- Ravallian, M. (1996). Issues in measuring and modelling poverty. *The Economic Journal*, 106(438), 1328-1344. doi:<http://www.jstor.org/stable/2235525>
- Ravallian, M. (2013). How long will it take to lift one billion people out of poverty? *Policy Research Working Paper*,
- Ravallion, M., & Chen, S. (2003). Measuring pro-poor growth. *Economics Letters*, 78(1), 93-99.
- Ravallion, M., & Wodon, Q. (1999). Poor areas, or only poor people? *Journal of regional science*, 39(4), 689-711. doi:<http://onlinelibrary.wiley.com.ezproxy.waikato.ac.nz/doi/10.1111/0022-4146.00156/pdf>
- Ravenstein, E. G. (1885). The Laws of migration. *Journal of the Statistical Society of London*, 48(2), 167-235.
- Reimer, J. J. (2002). *Estimating poverty impacts of trade liberalization* (GTAP working paper No.20). Purdue University, USA
- Reinert, S. E. (2011). *The impoverishment of analysis, measurement and policies*. Chowdhury, A. Sundaram & J. Kwame (Eds.), *The terrible simplifiers: common origins of financial crises and persistent poverty in economic theory and the new '1848 Moment'* (pp. 241).

- Roberts, M. (1966). Indian estate labour in Ceylon during the coffee period, 1830-1880. *The Indian Economic and Social History Review* 03(01)
- Rodriguez, J. G. (2002). The determinants of poverty in Mexico. doi:www.gdnet.org/pdf/2002AwardsWinners/GrowthInequalityPoverty/Jorge_garza_rodriguez_paper.pdf.
- Rowntree, B. S. (1901). *Poverty: A study of town life*. London: Macmillan.
- Sahn, D. E., & Edirisinghe, E. (1993). The politics of food policy in Sri Lanka: From basic human needs to an increased market orientation. In P. P. Andersen (Ed.), *The political economy of food and nutrition policies*.
- Sala-i-Martin, X. (2002). *The world distribution of income (estimated from individual country distributions)*. National Bureau of Economic Research
- Samaraweera, G. C. (2010). Economic and social assessment of poverty alleviation programs in Sri Lanka - special reference to the Gemidiriya Community Development and Livelihood Improvement Project. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 01(01), 60-65.
- Sameti, M., Esfahani, R., Dallali, & Haghighi, H., Karnameh. (2012). Theories of poverty: A comparative analysis. *Kuwait Chapter of Arabian Journal of Business and Management Review* 01(06),
- Samurdhi Authority. (2010). *Annual Report*. Sri Lanka:
- Sanderathne, N. (2004). Agriculture development: Controversial issues. In S. Kelegama. (Ed.), *Economic policy in Sri Lanka : Issues and debates* (pp. Pg 195-212). Colombo.
- Savard, L. (2003). Poverty and Income Distribution in a CGE-Household Micro-Simulation Model: Top-Down/Bottom Up Approach. *Cahiers de recherche/Working Paper*, 03-43.
- Sen, A. (1976). An ordinal Approach to Measurement. *Econometrica*, 44(2), 219-231.
- Sen, A. (1983). Poor, relatively speaking. *Oxford Economic Papers*, 35(2), 153-169.
- Shaw, J. (2010). From Kuwait to Korea: the diversification of Sri Lankan labour migration. *Journal of the Asia Pacific Economy*, 15(1), 59-70.
- Sjaastad, L. A. (1962). The costs and returns of human migration. *Journal of Political Economy*, 70(5), 80-93.
- Skeldon, R. (1997). Rural-to-urban migration and its implications for poverty alleviation. *Asia-Pacific population journal/United Nations*, 12(1), 3.
- Skeldon, R. (2002). Migration and poverty. *Asia Pacific Population Journal*, 17(4), 67-82.
- Smith, A. (1776). *An enquiry into the nature and causes of the wealth of nations*. London: Methuen & Co., Ltd.
- Spector, L. C., & Mazzeo, M. (1980). Probit analysis and economic education. *The Journal of Economic Education*, 11(2), 37-44. doi:<http://www.jstor.org/stable/1182446> .
- Stark, O. (1991). *The migration of labour* Blackwell, Cambridge & Oxford.
- Stark, O., & Levhari, D. (1982). On migration and risk in LDCs. *Economic Development and Cultural Change*, 31(1), 191-196.
- Stark, O., Taylor, J. E., & Yitzhaki, S. (1986). Remittances and inequality. *The Economic Journal*, 96(383), 722-740.

- Stone, S., Strutt, A., & Hertel, T. (2010). *Assessing socioeconomic impacts of transport infrastructure projects in the Greater Mekong Subregion*. Tokyo: Asian Development Bank Institute
- Stone, S., Strutt, A., & Hertel, T. (2012). Socio-Economic impact of regional transport infrastructure in the Greater Mekong Subregion. *Infrastructure for Asian Connectivity*, 95.
- Strutt, A. (2008). *Quantitatively assessing a BIMSTEC-Japan FTA: A CGE analysis*. Paper presented at the CSIRD Discussion Paper, Center for Studies in International Relations and Development, Kolkata
- Strutt, A., Hertel, T. W., & Stone, S. (2010). Exploring Poverty Impacts of ASEAN Trade Liberalization for Cambodia, Lao PDR, Thailand and Vietnam. *New Developments in Computable General Equilibrium Analysis for Trade Policy (Frontiers of Economics and Globalization, Volume 7)*, Emerald Group Publishing Limited, 7, 217-245.
- Tabunga, A. D. (2007). International remittances and household expenditures: The Philippines case. *Philippine Institute for Development Studies Discussion Paper*, 18
- Tan, P. L. (2011). *The economic impacts of migrant maids in Malaysia*. University of Waikato, Hamilton. Retrieved from <http://hdl.handle.net/10289/5366>
- Tan, P. L., & Gibson, J. (2010). *The impacts of temporary emigration of lower-skilled females on sending households in Indonesia*. Paper presented at the Sixth Australasian Development Economics Conference
- Taylor, E. J. (1995). Micro economy-wide models for migration and policy analysis: an application to Mexico. Paris: OECD.
- Taylor, E. J. (1999). The new economics of labour migration and the role of remittances in the migration process. *International Migration*, 37(1), 63-88.
- Taylor, J. E., Adams, R., Mora, J., & López-Feldman, A. (2008). Remittances, Inequality and Poverty: Evidence from Rural Mexico *Migration and development within and across borders: research and policy perspectives on internal and international migration* (pp. 101). New York: IOM &SSRC.
- Taylor, J. E., & Filipinski, M. (2011). The impact of migration policies on rural household welfare in Mexico and Nicaragua. *OECD Development Centre Working Papers*
- Taylor, J. E., & Martin, P. L. (2001). Human capital: migration and rural population change. *Handbook of agricultural economics*, 1, 457-511.
- Tennakoon, K. U. A. (2003). *General equilibrium analysis of Sri Lanka's trade liberalization policy options*. University of Auckland, New Zealand.
- Tobin, J. (1958). Estimation of relationships for limited dependent variables. *Econometrica*, 26(1), 24-36.
- Todaro, M. (1980). Internal migration in developing countries: a survey. In A. R. Easterlin (Ed.), *Population and economic change in developing countries*: University of Chicago Press.
- Topalova, P. (2007). Globalization and poverty. In A. Harrison (Ed.), *Trade liberalization, poverty and inequality: Evidence from Indian Districts* (Vol. 0-226-31794-3). Retrieved from <http://www.nber.org/chapters/c0110>
- Tudawe, I. (2001). *Chronic poverty and development policy in Sri Lanka: overview study*: Institute for Development Policy and Management, The University of Manchester.

- Tutwiler, M. A., & Straub, M. (2005). *Making agricultural trade reform work for the poor*. Washington DC: The International Food & Agricultural Trade Policy Council
- TWN. (2006). *Globalization, liberalization, protectionism: impacts on poor rural producers in developing countries*.: IFAD
- Uduporuwa, R. J. M. (2007). Regional Dimensions of Development of Sri Lanka. *Sabaragamuwa University Journal*, 07(01), 22-36.
- Ukwatta, S. (2005). Internal migration of women and development in Sri Lanka. *Migration Development and Poverty Reduction Asia*
- Ukwatta, S. (2010). *Economic and social impacts of the migration of Sri Lankan transnational domestic workers on families and children left behind*. The University of Adelaide, Adelaide.
- UNDP. (2014). *Human Development Report 2014*. New York: United Nations Development Programme
- UNEP. (2005). *Integrated assessment of the impact of trade liberalization : a country study on the Indonesian rice sector*. UNEF
- United Nations. (2009). *Rethinking poverty* (ST/ESA/324). New York: Department of Economic and Social Affairs
- Valentine, C. A. (1968). *Culture and poverty:critique and counter-proposals*. Chicago: University of Chicago Press.
- Verma, M., Hertel, T. W., & Valenzuela, E. (2011). Are The Poverty Effects of Trade Policies Invisible? *The World Bank Economic Review*, 25(2), 190-211.
- Vollmann, W. (2010). The challenge of technical and vocational training and education in rural areas: the case of South-Asia. *Journal of Education and Research*, 02, 52-58
- doi: <http://dx.doi.org/10.3126/jer.v2i0.7623>
- Weerahewa, J. (2006). *Rice market liberalization and household welfare in Sri Lanka: A general equilibrium Analysis* (working paper 1). Canadian Agricultural Trade Policy Research Network
- Weeraratne, C. S. (2011). Poverty alleviation, seminars and conferences. *The Island Online*.
- Wesumperuma, D. (1974). *The migration and conditions of immigrant labour in Ceylon, 1880-1910*. University of London.
- Wickramasekara, P. (2011). Labour Migration in South Asia: A Review of Issues, Policies and Practices.
- Winters, L. A. (2000). Trade and Poverty Is there a connection? In Ben David D., N. H. & W. L. A (Eds.), *Trade, Income Disparity and Poverty*. Geneva: WTO.
- Winters, L. A. (2000a). *Trade, trade policy and poverty: What are the links?* (paper 2382). Center for Economic Policy Research
- Winters, L. A., McCulloch, N. A., & McKay, A. (2004). Trade liberalization and poverty: The evidence so far. *Journal of Economic Literature*, XLII, 72-115.
- Wodon, Q. (1997). Targeting the poor using ROC curves *World Development* 25(12), 2083-2092. doi:10.1016/S0305-750X(97)00108-3
- Wodon, Q., Castro-Fernandez, R., Lee, K., Lopez-Acevedo, G., Siaens, C., Sobrado, C., et al. (2001). Poverty in Latin America: Trends (1986-1998) and determinants. *Cuadernos de Economia*, 38(114), 127-153.
- World Bank. (2005). Introduction to poverty analysis.

- World Bank. (2007). *Sri Lanka poverty assessment: engendering growth with equity: opportunities and challenges* (Report No. 36568-LK).
- World Trade Organization. (2010). *Trade policy review:Sri Lanka*. WTO. Retrieved from http://www.wto.org/english/tratop_e/tpr_e/tp337_e.htm
- Zhang, M. (2010). The impact of rural-urban migration: Case study on the Loess Plateau of Central China. *China Information*, 24(2), 169.
- Zohry, A. (2002). *"Rural to urban labour migration; A study of upper Egyptian laborers in Cairo*. University of Sussex.
- Zohry, A. (2009). *The migratory patterns of Egyptians in Italy and France*. San Domenico di Fiesole, Italy: European University Institute, Florence Robert Schuman centre for advanced studies
- Zosa, V., & Orbeta Jr, A. (2009). The social and economic impact of Philippine international labor migration and remittances. *Discussion paper series No. 2009-32*, 1-36

Appendix

Appendix 1: Tariff line changes in Sri Lanka

		MFN applied 2003	MFN applied 2009	MFN applied 2010 ^a	Final bound ^b
1.	Bound tariff lines (% of all tariff lines)	..	35.8	36.4	36.4
2.	Simple average tariff rate	9.8	12.0	11.5	32.7
	Agricultural products (HS01-24)	21.0	24.2	25.4	50.1
	Industrial products (HS25-97)	7.9	9.9	9.1	19.8
	WTO agricultural products	21.3	24.3	25.6	50.1
	WTO non-agricultural products	8.0	10.1	9.2	21.1
	Textiles and clothing	5.2	7.3	7.4	12.2
	ISIC 1 - Agriculture, hunting, fishing	16.8	19.9	20.8	48.5
	ISIC 2 – Mining	5.3	7.3	6.3	50.0
	ISIC 3 – Manufacturing	9.3	11.5	10.9	29.2
	Manufacturing excluding food processing	7.9	9.9	9.1	19.4
	First stage of processing	12.5	14.9	15.7	45.9
	Semi-processed products	4.4	5.4	4.1	16.9
	Fully processed products	12.1	14.9	14.5	32.5
3.	Duty-free tariff lines (% of all tariff lines)	10.0	11.7	44.4	0.4
4.	Non- <i>ad valorem</i> tariffs (% of all tariff lines)	1.3	3.9	3.9	1.8
	Non- <i>ad valorem</i> tariffs with no AVEs (% of all tariff lines)	1.3	3.9	3.9	1.8
5.	Tariff quotas (% of all tariff lines)	0.0	0.0	0.0	0.0
6.	Domestic tariff "peaks" (% of all tariff lines) ^c	0.3	0.3	0.3	0.1
7.	International tariff "peaks" (% of all tariff lines) ^d	21.9	23.8	23.9	69.3
8.	Overall standard deviation of tariff rates	12.4	13.5	14.7	20.2
9.	Coefficient of variation of tariff rates	1.3	1.1	1.3	0.6
10.	Nuisance applied rates (% of all tariff lines) ^e	27.1	0.0	0.0	0.0

Source: WTO calculations, based on data provided by the Sri Lankan authorities.

.. Not available.

a As of June.

b Implementation of the U.R. was achieved in 2001. Calculations for final bound rates are taken from the CTS database, adjusted to the 2010 tariff schedule. Including partially bound rates

c Domestic tariff peaks are defined as those exceeding three times the overall simple average applied rate.

d International tariff peaks are defined as those exceeding 15%.

e Nuisance rates are those greater than zero, but less than or equal to 2%.

Note: Calculations exclude specific rates and include the *ad valorem* part of alternate rates. The 2003 tariff schedule is based on HS02 nomenclature, consisting of 6,225 tariff lines; the 2009 and 2010 tariff schedules are based on HS07 nomenclature, consisting, respectively, of 6,509 and 6,592 tariff lines.

Appendix 2: Measures of the Extent of Poverty

There are a number of ways of constructing poverty measures. They are as follows

(Haughton & Khandker, 2009, p. 67):

The poverty headcount index (P0):

The poverty headcount index (P0) measures the proportion of the population that is poor. Although this index is commonly used and easy to understand and measure, it does not take intensity of poverty into consideration, does not indicate how poor the poor are, and calculations are for individuals not for households.

The formulae for the calculation are:

$$P_0 = \frac{N_p}{N} \quad (1)$$

N_p Number of poor

N Total population (or the sample)

$$P_0 = \frac{1}{N} \sum_{i=1}^N I(y_i - z) \quad (2)$$

$I(y_i - z)$ is an indicator function that takes on a value of 1 if the expression in parentheses is true, and a value of zero otherwise. If y_i (expenditure) is less than z (poverty line), then $I(y_i - z)$ equals one and the household is considered to be poor.

Poverty Gap Index (P1)

A moderately popular measure of poverty is the poverty gap index. This measure adds up the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line. More specifically, it defines the poverty gap (G_i) as the poverty line (z) less actual income (y_i) for poor individuals;

the gap is considered to be zero for everyone else. However the measure does not reflect changes in inequality among the poor.

Using the index function as follows;

$$G_i = (z - y_i) \times I(y_i < z) \quad (3)$$

Then the poverty gap index (P1) may be written as

$$P_1 = \frac{1}{N} \sum_{i=1}^N \frac{G_i}{z} \quad (4)$$

Squared Poverty Gap (Poverty Severity) Index (P2)

The squared poverty gap index is generally used to show inequality among the poor. This is simply a weighted sum of poverty gaps (as a proportion of the poverty line), where the weights are the proportional poverty gaps themselves; a poverty gap of, say, 10 per cent of the poverty line is given a weight of 10 per cent while one of 50 per cent is given a weight of 50 per cent; this is in contrast with the poverty gap index, where the gaps are weighted equally. Hence, by squaring the poverty gap index, the measure implicitly puts more weight on observations that fall well below the poverty line Haughton and Khandker (2009, p. 72). The formula for P2 is as follows:

$$P_2 = \frac{1}{N} \sum_{i=1}^N \left(\frac{G_i}{z} \right)^2 \quad (5)$$

Foster, Greer, and Thorbecke (1984a) have proposed this as one of a family of measures written quite generally as follows:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^N \left(\frac{G_i}{z} \right)^\alpha, (\alpha \geq 0) \quad (6)$$

- α a measure of the sensitivity of the index to poverty
- z the poverty line
- x_i the value of expenditure per capita for the i th person's household
- $G_i = z - x_i$ (with $G_i = 0$ when $x_i > z$)
- $\alpha = 0$, is simply the headcount index P_0 .
- $\alpha = 1$, the index is the poverty gap index P_1
- $\alpha = 2$, is the poverty severity index P_2 .

Sen Index (P_s)

Sen (1976) suggested this index to combine the effects of the number of poor, the depth of poverty and the distribution of poverty within the group.

The index is given by the formula

$$P_s = P_0 \left(I - (I - G^p) \frac{\mu^p}{z} \right) \quad (7)$$

- P_0 is the headcount index
- μ^p is the mean income (or expenditure) of the poor
- G^p is the Gini coefficient of inequality among the poor

The Sen-Shorrocks-Thon Index (P_{SST})

One of the more attractive versions of the Sen Index is the Sen-Shorrocks-Thon (SST) index. The formula is as follows:

$$P_{SST} = P_0 P_1^p (1 + \hat{G}^p) \quad (8)$$

which is the product of the headcount index, the poverty gap index (applied to the poor only), and a term involving the Gini coefficient of the poverty gap ratios for the whole population.

The Watts Index

The first distribution-sensitive poverty measure was proposed in 1968 by Watts (Haughton & Khandker, 2009, p. 77), and in its discrete version takes the form

$$W = \frac{1}{N} \sum_{i=1}^q [\ln(z) - \ln(y_i)] = \frac{1}{N} \sum_{i=1}^q \ln\left(\frac{z}{y_i}\right) \quad (9)$$

where all N individuals in the population are indexed in ascending order of income

(or expenditure), and the sum is taken over those q individuals whose income (or expenditure) y_i falls below the poverty line z .

Appendix 3: Summary statistics (excluding the five new districts)–2010

Variable	Observation	Mean	Std. Dev.	Min	Max
sector	69241	1.847143	0.578826	1	3
district	69241	38.88245	28.31992	11	92
relationship	69241	2.680767	1.343274	1	9
Sex	69241	1.52518	0.499369	1	2
Age	68110	33.12662	21.12347	1	99
ethnicity	69232	1.478911	1.001373	1	9
Religion	69234	1.568146	0.991587	1	9
Current education	65671	5.701847	2.202198	1	9
Education level	62039	8.917971	4.097929	1	19
Marital status	57366	1.782885	0.683851	1	5
Main activity	57352	2.529537	1.550721	1	9
Main occupation	24416	6149.577	2527.861	110	9411
industry	24407	3968.545	3168.805	111	9900
employment	24445	3.462958	1.394224	1	9
Poverty dummy	69241	0.080559	0.272159	0	1
Head age	69241	51.44556	13.833	0	129
Head_ government	69241	0.109559	0.312342	0	1
Head_ private	69241	0.310625	0.464249	0	2
Head self-employed	69241	0.259629	0.43883	0	2
Head Non-farm	69195	0.47791	0.499515	0	1
Education_ OL	69166	0.704855	0.456111	0	1
Education OL plus	69223	0.295335	0.456197	0	1
Head ethnic minority	69241	0.225531	0.417935	0	1
Spouse employed	69241	0.247715	0.431688	0	1
Female-headed	69241	0.212042	0.408969	0	2
Average education	68220	8.937164	2.761537	1	19
Household size	69241	4.732817	1.816722	1	17
Female adult ratio	69241	0.349013	0.169764	0	1
Dependency ratio	69241	0.369954	0.23303	0	1
Local remittance	69241	0.066305	0.248816	0	1
Foreign remittance	69241	0.06798	0.251713	0	1
Urban	69241	0.255629	0.436217	0	1
Rural	69241	0.6416	0.479534	0	1
Estate	69241	0.102772	0.303662	0	1

Source : Author calculations based on HIES 2009/10 data

Appendix 4: Probit regression results* (marginal effects excluding five new districts)_HIES 2010

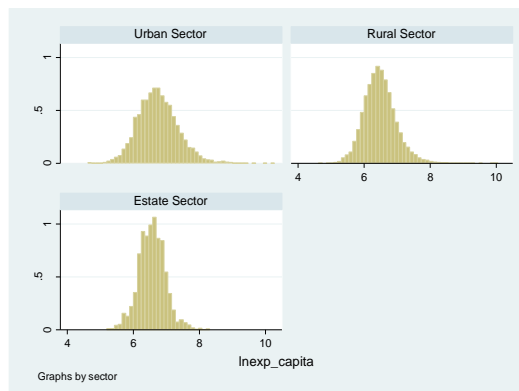
Poverty determinants	dF/dx	Robust Std. Err.	z	P>z	x-bar	[95% C.I.]
Household Head:						
Age	-0.0001	0.0000738	-1.56	0.118	51.356	0 0
Employed in government sector	-0.0367	0.0026794	-10.04	0	0.11	-0.042 -0.031
Employed in private sector	0.0364	0.0034278	11.62	0	0.311	0.03 0.043
Self-employed	0.0024	0.0027737	0.88	0.381	0.261	-0.003 0.008
Engaged in non-agricultural job	-0.0245	0.0021951	-11.17	0	0.481	-0.029 -0.02
Education (number of years)	-0.9506	0.0047505	-69.78	0	0.705	-0.96 -0.941
Ethnicity (Non-Sinhalese=1)	0.0105	0.0027059	4.02	0	0.227	0.005 0.016
Household Demography :						
Spouse employed	0.0009	0.0020718	0.44	0.657	0.251	-0.003 0.005
Female-headed household	0.0161	0.0027494	6.23	0	0.205	0.011 0.021
Average education of other members (No of years)	-0.0055	0.000407	-13.25	0	8.938	-0.006 -0.005
Household size	0.0192	0.0004541	42.82	0	4.779	0.018 0.02
Female adult ratio	-0.0601	0.0073787	-8.1	0	0.349	-0.075 -0.046
Dependency ratio	0.0293	0.0051122	5.75	0	0.368	0.019 0.039
Remittances:						
Local Remittance	-0.0094	0.0032953	-2.67	0.008	0.065	-0.016 -0.003
Foreign Remittance	-0.0484	0.0016905	-16.07	0	0.067	-0.052 -0.045
Rural	0.0395	0.0020552	17.9	0	0.641	0.035 0.044
Estate	0.0722	0.0060223	15.27	0	0.103	0.06 0.084

Source: Author calculations based on HIES 2009/10 data

*As HIES 2009/10 covered the whole Island, we did this calculation excluding the five districts which were not included other HIES surveys used in this study, to maintain comparability.

Appendix 5: Expenditure per capita distribution 1990-2010

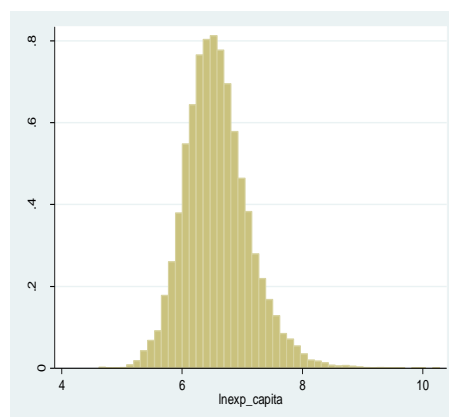
1990



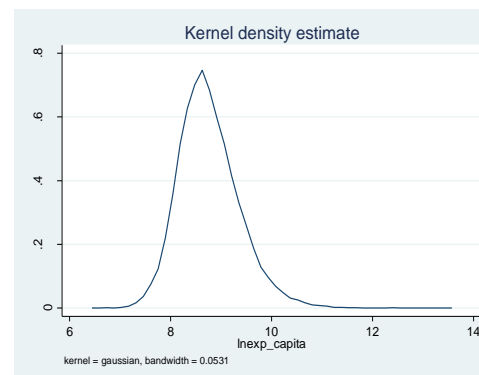
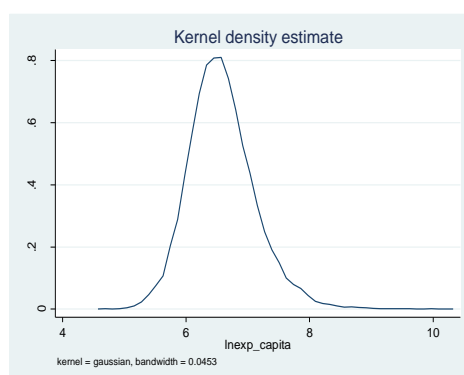
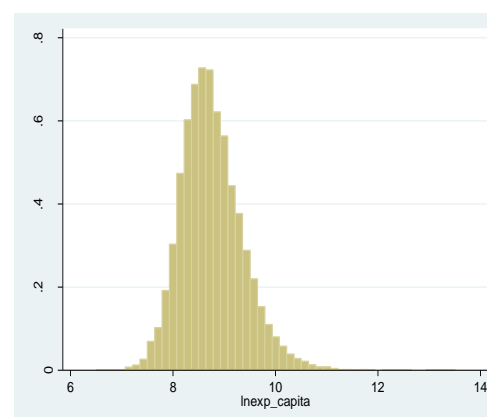
2010



Expenditure per capita for Sri Lanka-1990



Expenditure per capita for Sri Lanka-2010



Appendix 6: Ethics approval for the field survey

Consent Form for Participants

Waikato Management School

Te Raupapa



THE UNIVERSITY OF

WAIKATO

Te Whare Wānanga o Waikato

Poverty and inequality impacts of agriculture trade liberalization in Sri Lanka

(Project title: Rural to urban labour migration and its implications for poverty reduction in Sri Lanka)

I have read/interviewer read for me “the **Information Sheet for Participants**” for this study and the details of the study have been explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I also understand that I am free to withdraw from the study before 31st March 2011, or to decline to answer any particular questions in the study. I agree to provide information to the researchers under the conditions of confidentiality set out on the **Information Sheet**.

I agree to participate in this survey under the conditions set out in the **Information Sheet** form.

Signed: _____

Name: _____

Date: _____

Researcher's Name and Contact Information:

Seetha Ranathunga
Department of Economics
University of Kelaniya
Sri Lanka.(011 2914488)/
Department of Economics
Waikato Management School
The University of Waikato, New Zealand
OP.29.02 Orchard Park,
Mobile number: (64) 210611685
Email: spr9@waikato.ac.nz

Chief Supervisor' Name and Contact Information

A.Prof. Anna Strutt
Department of Economics
Waikato Management School
The University of Waikato, New Zealand
Private Bag 3105
Hamilton, New Zealand
Tel: (64 7) 838 4958
Email: astrutt@waikato.ac.nz

Participant Information Sheet

Waikato Management School

Te Raupapa



Dear participants,

I am a PhD student at the Waikato Management School, the University of Waikato, New Zealand and a lecturer in the Department of Economics, University of Kelaniya in Sri Lanka. I am engaging a research for my doctoral thesis on **“Poverty and inequality impacts of agriculture trade liberalization in Sri Lanka”**. Under this study, I am doing my field surveys in two phases, including three groups of people. The surveys focus on the topic of my thesis **“Rural to urban labour migration and its implications for poverty reduction in rural sector in Sri Lanka: the part of thesis**. The first phase is based on the factory workers in Katunayake Investment Promotional Zone (IPZ) in Sri Lanka. Also I am interviewing the Managers in separate interviews. The second phase is a household survey in the origin of the migrant workers (few selected villages).

This study aims to examine in which way rural to urban migration impacts people in villages and poverty in Sri Lanka. The objectives of this study are:

- To analyse the impact of local remittances on livelihood improvement as a process of poverty reduction in Sri Lanka.
- To identify the determinants of internal labour mobility in Sri Lanka.
- To make regional/sectoral level policy recommendations for poverty reduction in Sri Lanka.
- To develop partial equilibrium model on rice/ dairy sector in Sri Lanka.

If you participate in this study, you have the right:

- To refuse to answer any particular question during the interview/questionnaire.
- To request any further information related to the research during your participation.
- To have access to the summary of the research findings when the report is completed.

- To withdraw from the study at anytime up until 31st March 2011 by sending post mail, email or calling the researcher.

In order to carry out this research, I need to collect data on you, your family information and your labour history, income and expenditure information and migration related information. Your participation in the interview is voluntary and extremely significant to my study. If you agree to take part in this survey, it will take you about half an hour to complete the questionnaire.

I would like to assure that your answers to this questionnaire will be kept absolutely confidential.

Thank you very much for your valuable time and cooperation.

If any clarification further, please do not hesitate to contact me at the address below.

Researcher's Name and Contact Information:

Seetha Ranathunga

Local Address: Department of Economics, University of Kelaniya, Dalugama, Sri Lanka.

Overseas Address: Department of Economics, Waikato Management School, University of Waikato, New Zealand. OP.29.02 Orchard Park, Waikato Management School, Hamilton, New Zealand.

Mobile number: (64) 210611685. Email: spr9@waikato.ac.nz.

Participant Information Sheet

Waikato Management School

Te Raupapa



Dear participants,

I am Seetha Ranathunga, a lecturer attached to the Department of Economics in the University of Kelaniya, Sri Lanka. At present, I am reading for my doctoral degree at the Waikato Management School, the University of Waikato, New Zealand. My doctoral research programme is sponsored by The National Centre for Advanced Studies in Humanities and Social Sciences (NCAS) and the University of Kelaniya, in Sri Lanka.

My working title is **“Poverty and inequality impacts of agriculture trade liberalization in Sri Lanka”**. The aim of my PhD research is examining and quantifying the impact of agricultural trade reforms on poverty and income inequality in Sri Lanka. This is based on both primary and secondary data. Secondary data obtained from Household Income and Expenditure data in 1990, 1995 and 2006.

The main objectives of this field survey on **Rural to urban labour migration and its implications for poverty reduction in rural sector in Sri Lanka** are:

To examine the economic impact of rural to urban migration and its implications to the migrant-families¹⁴⁹ in the villages (farming households in rural Sector in Sri Lanka), and identifying the impact of agriculture reforms in the farming community in rural sector in Sri Lanka. This research is under supervision of Dr Anna Strutt, Professor John Gibson and Steven Lim at the Waikato Management School, the University of Waikato, New Zealand. Your participation is totally voluntary and your cooperation is extremely significant to my study.

What will you have to do if you take part in the study?

As part of this research, you will answer a pre-set questionnaire, which will take approximately 30 minutes to complete with the one of my research assistants.

¹⁴⁹ Here the migrant-families are the families where there is/are a member/members working and living outside temporarily (in a city) from the household and sending money to their family.

For what purposes will the data be used?

The data from the questionnaire will be used mainly to complete my PhD thesis and then findings will be presented in conference papers and journal articles. As well as copies of the thesis will be submitted to the Department of Census and Statistics, NCAS, and University of Kelaniya in Sri Lanka and other government bodies and research institutes as per the request. Further the thesis will be available online as a Waikato University procedure.

How to protect your identity?

The questionnaire will be destroyed after submission of the thesis and the collected data will be coded and aggregated. The analysed data will be represented in a form for general statistical description and econometric analysis. Therefore, your name and personal detail information will be protected and kept absolutely confidential in my thesis, conference papers, research reports and other publications. The coding system will be securely stored in files with my own password in my own computer. Only I and my supervisors will have access to the data.

If you participate in this study, you have the right:

- To refuse to answer any particular question during the interview.
- To request any further information related to the research during your participation.
- To have access to the summary of the research findings when it is completed (you can access to the summary of findings by sending me a mail or by call. I will post or email you it).
- To withdraw from the research at any time up until 31st March 2011 by sending post mail, email or calling to the researcher.

I really appreciate your support and thank you very much for your cooperation.

Researcher's Name and Contact Information:

Local Address: Department of Economics, University of Kelaniya, Dalugama, Sri Lanka.

Overseas Address: Department of Economics, Waikato Management School, University of Waikato, New Zealand. OP.29.02 Orchard Park, Waikato Management School, Hamilton, New Zealand.

Mobile number: (64) 210611685. Email: spr9@waikato.ac.nz.

Chief Supervisor' Name and Contact Information

Dr Anna Strutt

Department of Economics, Waikato Management School, the University of Waikato, New Zealand.

Private Bag 3105, Hamilton, New Zealand. Tel: (64 7) 838 4958. Email: astrutt@waikato.ac.nz

Appendix 7 : Projects in commercial operation under BOI -2012

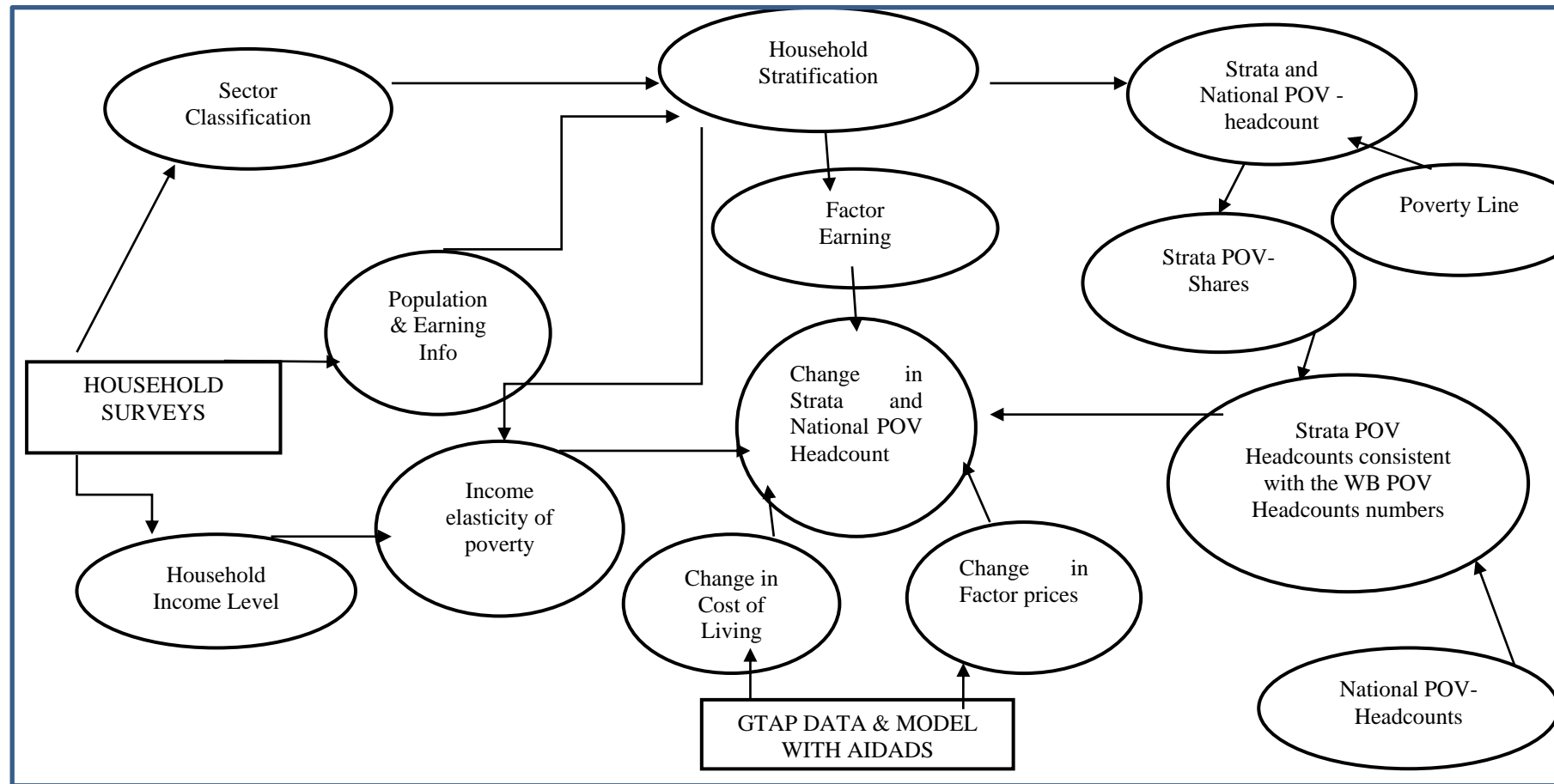
District	No. of Projects in commercial Operation	Employment (Nos.)
Ampara	8	3,722
Anuradhapura	18	5,980
Badulla	23	2,902
Batticaloa	3	528
Colombo	676	116,427
Galle	66	17,376
Gampaha	500	153,833
Hambantota	21	5,154
Jaffna	3	77
Kalutara	127	32,886
Kandy	58	9,127
Kegalle	38	11,434
Kurunegala	75	30,000
Matale	17	3,255
Matara	18	4,015
Monaragala	9	1,778
Nuwara- Eliya	53	8,651
Polonnaruwa	12	4,357
Puttalam	70	9,927
Ratnapura	43	11,077
Trincomalee	15	3,089
Vauniya	1	n.a
Total	1,854	435,595

Source: Board of Investment of Sri Lanka:

Note: Project location is considered as the location of factory 01 of the project, this Projects

Approved under Sec 17 of BOI Law

Appendix 8: Household data usage for the GTA-POV model



Source: Adopted from Hertel et al. (2011)

Appendix 9: Field survey questionnaire 1

Confidential

Rural to urban labour migration and its implications for poverty reduction:

A study of factory workers in Katunayake Investment Promotional Zone in Sri Lanka

Name of the Migrant worker ¹⁵⁰ :	Ref: No:
Name of the permanent residence (village):	
DSD:	
District:	
Name of the factory:	
Location of the factory:	

Total number of people in the household	<input type="text"/>
No of internal migrants of the household	<input type="text"/>
No of international migrants of the households	<input type="text"/>

Name of interviewer:	Date completed	<input type="text"/>
Supervisor:	Date completed	<input type="text"/>
Data Entry operator:	Date completed	<input type="text"/>

¹⁵⁰ All the factory workers who participate for the survey should complete the following requirements

- Originally from a Village farm family
- Has being working in the factory not less than one year
- Is working in the factory and staying in the city (not coming from home daily).

1. Personal information of the migrant worker

Q1 ID	Q2. Sex 1. male 2. female	Q3. Age years	Q4. Relationship to head of the household in the village? 1. head 2. spouse 3. child 4. parents/parents in law 5. relatives 6. borders/lo dgers 7. servants 8. other	Q5. Marital status What is your marital status?(15 and above years) 1. Never married 2. Married 3. Divorced 4. Widowed 5. Separated	Q6. Ethnicity What is your ethnicity 1. Sinhalese 2. Sri Lanka Tamil 3. Indian Tamil 4. Sri Lanka Moors 5. Malay 6. Burgher 7. Other	Q7. What is the highest level of education you achieved? 1. Grade 1 2. Grade 2 3. Grade 3 4. Grade 4 5. Grade 5 6. Grade 6 7. Grade 7 8. Grade 8 9. Grade 9 10. Grade 10 11. G.C. E (O/L) or equivalent 12. Grade 12 13. G.C. E (A/L) or equivalent 14. GAQ/GSQ 15. Degree 16. Postgraduate degree/diploma 99. No schooling

2. Migrant workers family information

Q1. How many members are there in your family in the village?

Q2. What is the highest education qualification of your family members (exclude members studying currently)? (Refer to the codes in section 1 Q7)

Q3. How many of your family members were wage earners within last month? What is sector majority work for?

Q4. How many of your family members are studying currently?

Q5. How many of your family members are unemployed?

Q6. How many children under 16 and how many elderly people over 60 are there in your family in the village?

Q7. How many of your family members are living with you in the city?

Q8. Does your household receive any business (off-farm) income?(monthly average)

Q9. How many farm lands does your household belong to? Paddy.....?

Land.....?

Q10. What is the main source of income in your family?

3. Migration history of the participant

Q1. How many times did you move across village and stay for six Months or more in the city of migration? <i>Note: Write the name of the city or country</i>	1st	2nd	3rd	4th	Last
Q2. When did you migrate (Year)					
Q3. How long you spend there (said city) (months/years)					

<p>Q4. What was the main purpose for your migration from the village? (prioritise, maximum five reasons)</p> <ol style="list-style-type: none"> 1. Education/training-related 2. Unemployment 3. Expectation of high salary 4. Marriage 5. Migration with family 6. To be independent, separate from parents 7. Political disturbance 8. To shift from farm work to off-farm work 9. Family problem(s) 10. Natural and other disasters 11. Other (specify) 					
<p>Q5. Who moved together with you at the time of the movement? (list all that apply)</p> <ol style="list-style-type: none"> 1. Husband/wife 2. Father /mother 3. Brother/sister 4. Children 5. No other family member 6. Other (specify) 					

1. Labour History

Q1. Did you have a paid job or business before migrating to a city for the first time? 1. Yes>>2 2. No>>section 5	Q2. What were you doing before migrating to a city first time? 1. Employee(paid) 2. Employer 3. Self-employed farm 4. Self-employed off- farm 5. Unpaid family worker 6. Other (specify)	Q3. What is the related sector /industry of your job? 1. Agriculture 2. Industry 3. Service	Q4. What was the type of your job? 1. Permanent 2. Contract 3. Temporary	Q4. How many years did you spend for your fist job/business?	Q5. What were your usual monthly income /salary of your first job? (SLR)	Q6. What was your total income for the month? SLR	Q7. Prior to migration for the current job, what were you doing? Note: if differ from Q2 1. Employee(paid) 2. Employer 3. Self-employed farm 4. Self-employed off-farm 5. Unpaid family worker 6. Other(specify)	Q8. What was the usual monthly income before migrating for the current job (SLR)

2. Current Employment

Q1. How did you find this job? Through; 1. Advertisement 2. Relatives 3. Friends 4. Village migrant network 5. other	Q2. What is the type of your current job? 4. Permanent 5. Contract Q3 6. Temporary	Q3. What is the term of your contract? Years /months	Q4. What is your current position?	Q5. How many times have you been promoted in this factory?	Q6. Approximately what was your salary during the last month?	Q7. How many overtime hours did you work for the last month?	Q8. How much did you earn for the last month? (Including the value of all benefits)?	Q9. What is the amount of year-end bonus or other bonuses you received recently?

6. If you have done a job in your village before migrating, how would you compare the current job with that in overall?

1. Excellent
2. Very good
3. Good
4. Average
5. Bad

7. Benefits from the Employer

Q1. Do you receive the following benefits from your employer for this job?	yes	no
<p>a. Meals?</p> <p>1. If yes, how many per day? Break first/ Lunch/Dinner(circle what you have)</p> <p>2. If not every day, how many meals per week?...../how many meals per month?.....</p> <p>b. Raw food, not in the form of meals</p> <p>c. Housing benefits</p> <p>d. Transportation benefits</p> <p>1. Car</p> <p>2. Bus</p> <p>3. Transportation allowance</p> <p>e. Medical benefits?</p> <p>1. Employer paid some health expenses</p> <p>2. Employer provided health insurance policy</p> <p>3. Employer provided health clinic</p> <p>f. Credit</p> <p>g. Employer-provided pension</p> <p>h. Other (specify)</p>		
Q2. Have you ever received any training from your employer?		

8. Remittances

Q1.How often do you send money for your family? 1. Monthly 2. Once in three months 3. Twice a year 4. Annually 5. Never 6. Special occasions /emergencies/ on request 7. Other(specify)	Q2.How much money did you send in average? How much was the amount you have send recently?	Q3. What was the largest amount and the smallest amount you have send for your family	Q4. How much of the money have you sent in the past 12 months ?	Q3.How much is the value of goods you have sent last year (if you have sent any).	Q4.What is the method of your remittance 1. Government Bank 2. Private bank 3. Other financial institute 4. Not formal ways 5. Other(specify)	Q5.For what purpose, does your family use the money you remit? (circle all appropriates) 1. Day to day expenses 2. Family business (off-farm) 3. Farm work 4. Buying durable goods 5. Buying investment goods 6. Other(specify)

Q6.How often do you receive any goods or other in-kind gifts from your family in the village? <ol style="list-style-type: none"> 1. Monthly 2. Once in three months 3. Twice a year 4. Annually 5. Never 6. Special occasions /emergencies/ on request 7. Other(specify) 	Q7. How did you receive them? <ol style="list-style-type: none"> 1. By post 2. Returning to village 3. Members of the family come to visit 4. Other(specify) 	Q8.How much is the value of your goods and other in-kind gifts receivables last time?	Q9. What are the most common things (items) you have received /brought form your village?

9. Asserts (durable goods): state the number of items you have in your house in the village?

Item	Had before migration	Bought after migration	Do not yet have	If any items bought after your migration, did you spend on that? 1 Yes 2 No
Chairs				
Tables				
Settees				
Almyrahs				
Beds				
Other furniture				
Clocks/Wrist watch				
Gas cookers/electric cookers/ Toasters, Hotplates etc				
Grinders, beaters				
Irons				
Swing machines				
Fans				
Refrigerators				
Radio , record player & tape recorder				
TV/Video decks				

Washing Machine				
Musical instruments				
Bicycle				
Motor cycle/ Scooters				
Cars/Vans				
Camera &projections				
Computers				
Jewelleries				
Telephones/mobiles				
Other(specify)				

10. Did you buy any land/housing/paddy field/animals after migration? State the value and extent?

Land	House(including extension and repair)	Paddy field	animals	Other (specify)
			Pigs	
			Chickens	
			Cows(milking)	
			Cattles	
			Goats	
			Other(specify)	

11. How much money do you put in your monthly savings account on average?

SLR.....

12. How much money did you save from your job in the village (if you have done a job) per month on average? SLR.....

13. How much of your monthly income share allocate for the followings

food
clothes
medicine
rentals
remittance
transport
other expenses

14. What are your future plans?

1. Settle in the city and remain working in the same factory
2. Go back to village for self –employment(farm)
3. Go back to village for self –employment(off-farm)
4. Start a small business in a city
5. Other(specify)

15. Compared with you living standard in the village before migrating, would you say that your living standard is?

1. Much better now
2. Somewhat better now
3. About the same
4. Somewhat worse now
5. Much worse now

Appendix 10: The fraction with which to shock the per capita income in the country to reach the per capita poverty income

Poverty Lines	Poverty income levels by Rupees (per day/ per head)	Mean income per capita/ monthly*	Mean income per capita/ daily**	Fraction***
One dollar day/1.25\$	47.38	-	214.51	0.22
Two dollar day/2\$	91.32	-	214.51	0.43
National PL****	2233	6435.39	-	0.35

Source: Author calculations

* Mean income per capita/ monthly has been calculated using HIES data 2006

** Mean income per capita /daily has been calculated; dividing monthly per capita income by 30days

*** Fraction =Mean income per capita / Poverty Line

**** National PL shows poverty income level per month per head,

Note: If we calculated daily income per capita using National PL(PL divided by 30), daily income per capita is 74.43 rupees and it is in between 1.25\$ day and 2\$day Poverty Lines.

I assume this is the income level obtained by lining everyone up and finding the headcount cut off for the WB poverty rate.

This looks very reasonable. Nice that it falls between the two WB poverty lines.

Appendix 11: Sectoral aggregation of the GTAP-POV module

Original GTAP Sectors	Aggregated Sector	
pdr	Paddy rice	Rice
wht	Wheat	Wheat
gro	Cereal grains nec	Crsgns
v_f	Vegetables, fruit, nuts	OthCrps
osd	Oil seeds	Oilseeds
c_b	Sugar cane, sugar beet	Sugar
pfb	Plant-based fibers	Cotton
ocr	Crops nec	OthCrps
ctl	Cattle, sheep, goats, horses	Cattle
oap	Animal products nec	NRumin
rmk	Raw milk	Milk
wol	Wool, silk-worm cocoons	TextAppl
frs	Forestry	Forest
fsh	Fishing	Fish
coa	Coal	Utility

oil	Oil	Petrol
gas	Gas	Utility
omn	Minerals nec	HvyMnfcs
cmt	Meat: cattle, sheep, goats, horse	PrBeef
omt	Meat products nec	PrNRumn
vol	Vegetable oils and fats	PrOilsd
mil	Dairy products	PrDairy
pcr	Processed rice	PrRice
sgr	Sugar	PrSugar
ofd	Food products nec	OthFdBev
b_t	Beverages and tobacco products	OthFdBev
tex	Textiles	TextAppl
wap	Wearing	TextAppl
lea	Leather products	TextAppl
lum	Wood products	HvyMnfcs
ppp	Paper products, publishing	HvyMnfcs
p_c	Petroleum, coal products	Petrol
crp	Chemical, rubber, plastic prods	HvyMnfcs
nmn	Mineral products nec	HvyMnfcs
i_s	Ferrous metals	HvyMnfcs
nfm	Metals nec	HvyMnfcs
fmp	Metal products	HvyMnfcs
mvh	Motor vehicles and parts	Autos
otn	Transport equipment nec	TransCom
ele	Electronic equipment	Electron
ome	Machinery and equipment nec	OthMnfcs
omf	Manufactures nec	OthMnfcs
ely	Electricity	Utility
gdt	Gas manufacture, distribution	Utility
wtr	Water	Utility
cns	Construction	Constrct
trd	Trade	WRtrade
otp	Transport nec	TransCom
wtp	Sea transport	TransCom
atp	Air transport	TransCom
cmn	Communication	TransCom
ofi	Financial services nec	FinSvce
isr	Insurance	Utility
obs	Business services nec	FinSvce
ros	Recreation and other services	HsEdHe

osg	PubAdmin/Defence/Health/Educat	HsEdHe
dwe	Dwellings	HsEdHe

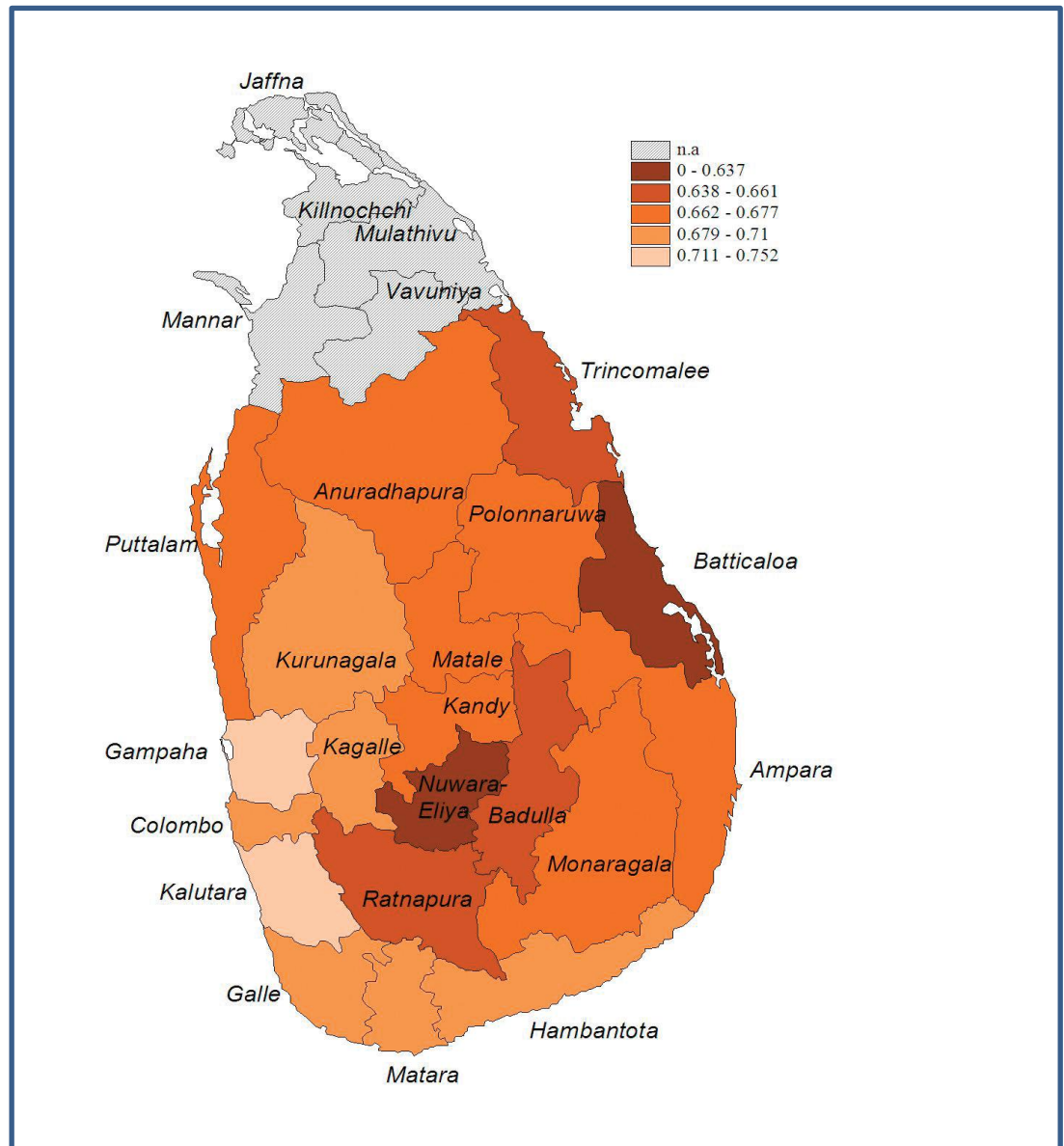
Source: Author's aggregation of the GTAP database

Appendix 12: Regional aggregation of the GTAP-POV module

Region	Detailed Description
AUSNZL	Australia + New Zealand
CHINA	China
JAPAN	Japan
KOREA	Korea + Taiwan
HK	Hong Kong
INDONESIA	Indonesia
THAILAND	Thailand
SINGAPORE	Singapore
MALAYSIA	Malaysia
XSE	Rest of South + East Asia
BANGALADESH	Bangladesh
INDIA	India
PAKISTAN	Pakistan
SRILANKA	Sri Lanka
XSA	Rest of South Asia
CAN	Canada
USA	United States
IRAN	Iran Islamic Republic of
TURKEY	Turkey
UAE	United Arab Emirates
EUEFTA	The European Union + EFTA
USSR	Russian Federation
XSS	Rest of the World

Source: Author's aggregation of the GTAP database

Appendix 13: Human Development Index 2011: Sub-National Variations



Source: : Computations by the report team of the Institute of Policy Studies of Sri Lanka using Department of Census and Statistics of Sri Lanka 2007a, 2009e and 2010c; Department of Elections of Sri Lanka 2011; and Institute of Policy Studies of Sri Lanka and United Nations Development Programme 2010(HDR 2012).

Note: Regions with lighter colours have lower levels of gender inequality; darker colours signify higher levels.

Appendix 14: International standard classification of occupation

**INTERNATIONAL STANDARD
CLASSIFICATION OF
OCCUPATION
(ISCO - 88)
MAJOR GROUP 1**

LEGISLATORS, SENIOR OFFICIALS AND MANAGERS

SUB-MAJOR GROUPS

- 11. Legislators and Senior Officials
- 12. Corporate Managers¹
- 13. General Managers²

SUB-MAJOR AND MINOR GROUPS

- 11. Legislators and Senior Officials
 - 111 Legislators
 - 112 Senior Government Officials
 - 113 Traditional Chiefs and Heads of Villages
 - 114 Senior Officials of special-interest organizations
- 12. Corporate Managers¹
 - 121 Directors and Chief Executives
 - 122 Specialized Managers
- 13. General Managers²
 - 131 General Managers

SUB-MAJOR, MINOR AND UNIT GROUPS

- 11. Legislators and Administrators
 - 111 Legislators
 - 1110 Legislators
 - 112 Senior Government Officials
 - 1121 Senior Government Officials
 - 113 Traditional Chiefs and Heads of Villages
 - 1130 Traditional Chiefs and Heads of Villages (new)
 - 114 Senior Officials of Special-interest Organizations.
 - 1141 Senior Officials of Political Party Organizations (new)
 - 1142 Senior Officials of Employees' workers' and other economic interest

- Organizations (new)
- 1143 Senior Officials of Humanitarian and other special-interest Organizations (new)
- 12. Corporate managers¹
 - 121 Directors and chief executives
 - 1210 Directors and chief executives
 - 122 Specialized managers
 - 1221 Production and operations managers
 - 1222 Finance and administration managers
 - 1223 Personnel and industrial relations managers
 - 1224 Sales and marketing managers
 - 1225 Advertising and public relations managers
 - 1226 Supply and distribution managers
 - 1227 Computing services managers
 - 1228 Research and development managers
 - 1229 Other specialized managers
- 13. General Managers²
 - 131 General Managers
 - 1311 General Managers in agriculture
 - 1312 General Managers in manufacturing
 - 1313 General Managers in construction
 - 1314 General Managers in retail and wholesale trade
 - 1315 General Managers of restaurants and hotels
 - 1316 General Managers in transportation
 - 1317 General Managers of business services firms
 - 1318 General Managers in personal care, cleaning, repairs and related services
 - 1319 Other general managers

MAJOR GROUP 2

PROFESSIONALS

- 21. Physical, mathematical and engineering science professionals
- 22. Life science and health professionals
- 23. Teaching professionals
- 24. Other professionals

SUB-MAJOR AND MINOR GROUPS

- 21. Physical, mathematical and engineering science professionals
 - 211 Physicists, chemists and related professionals
 - 212 Mathematicians, statisticians and related professionals
 - 213 Computing professionals
 - 214 Architects, engineers and related professionals
- 22. Life science and health professionals
 - 221 Life science professionals
 - 222 Health professionals (except nursing)
 - 223 Nursing and midwifery professionals
- 23. Teaching professionals
 - 231 College, university and higher education teaching professionals
 - 232 Secondary education teaching professionals

- 233 Primary and pre-primary education teaching professionals
- 234 Special education teaching professionals
- 235 Other teaching professionals.
- 24. Other professionals
 - 241 Business professionals
 - 242 Legal professionals
 - 243 Archivists, librarians and related information professionals
 - 244 Social and related science professionals
 - 245 Writers and creative and performing artists
 - 246 Religion professionals

SUB-MAJOR, MINOR AND UNIT GROUPS

- 21. Physical, mathematical and engineering science professionals
 - 211 Physicists, chemists and related professionals
 - 2111 Physicist and astronomers
 - 2112 Meteorologists
 - 2113 Chemists
 - 2114 Geologists and geophysicists
 - 212 Mathematicians, statisticians and related professionals
 - 2121 Mathematicians and related professionals
 - 2122 Statisticians
 - 213 Computing professionals
 - 2131 System designers and analysts
 - 2132 Computer programmers
 - 2139 Other computing professionals (new)
 - 214 Architects, engineers and related professionals
 - 2141 Architects, town and traffic planners
 - 2142 Civil engineers
 - 2143 Electrical engineers
 - 2144 Electronic and telecommunications engineers
 - 2145 Mechanical engineers
 - 2146 Chemical engineers
 - 2147 Mining engineers, metallurgists and related professionals
 - 2148 Cartographers and surveyors
 - 2149 Other architects, engineers and related professionals
- 22. Life science and health professionals
 - 221 Life science professionals
 - 2211 Biologists, botanists, zoologists and related professionals
 - 2212 Bacteriologists, pharmacologists and related professionals
 - 2213 Agronomists and related professionals
 - 222 Health professionals (except nursing)
 - 2221 Medical doctors
 - 2222 Dentists
 - 2223 Veterinarians
 - 2224 Pharmacists
 - 2229 Other health professionals (except nursing) (new)
 - 223 Nursing and midwifery professionals
 - 2230 Nursing and midwifery professionals
- 23. Teaching professionals

- 231 College, university and higher education teaching professionals
 - 2310 College, university and higher education teaching professionals
- 232 Secondary education teaching professionals
 - 2320 Secondary education teaching professionals
- 233 Primary and pre-primary education teaching professionals
 - 2331 Primary education teaching professionals
 - 2332 Pre-primary education teaching professionals
- 234 Special education teaching professionals
 - 2340 Special education teaching professionals
- 235 Other teaching professionals
 - 2351 Education methods specialists
 - 2352 School inspectors
 - 2359 Other teaching professionals not elsewhere classified (new)
- 24. Other professionals
 - 241 Business professionals
 - 2411 Accountants
 - 2412 Personal and careers professionals
 - 2419 Other business professionals
 - 242 Legal professionals
 - 2421 Lawyers
 - 2422 Judges
 - 2429 Other legal professionals
 - 243 Archivists, librarians and related information professionals
 - 2431 Archivists and curators
 - 2432 Librarians and related information professionals
 - 244 Social and related science professionals
 - 2441 Economists
 - 2442 Sociologists, anthropologists and related professionals
 - 2443 Historians and political scientist
 - 2444 Philologists, translators and interpreters
 - 2445 Psychologists
 - 2446 Social work professionals
 - 245 Writers and creative and performing artists
 - 2451 Authors, journalists and other writers
 - 2452 Sculptors, painters and related artists
 - 2453 Composers, musicians and singers
 - 2454 Choreographers and dancers
 - 2455 Film, stage and related actors and directors
 - 246 Religion professionals
 - 2460 Religion professionals

MAJOR GROUP 3

TECHNICIANS AND ASSOCIATE PROFESSIONALS

SUB-MAJOR GROUPS

- 31 Physical science and engineering associate professionals
- 32 Life science and health associate professionals
- 33 Teaching associate professionals

34 Other associate professionals

SUB-MAJOR AND MINOR GROUPS

- 31. Physical science and engineering associate professionals
 - 311 Physical science and engineering technicians
 - 312 Computer assistants and computer equipment controllers
 - 313 Optical and electronic equipment controllers
 - 314 Ship and aircraft controllers and technicians
 - 315 Building, safety, health and quality inspectors
- 32 Life science and health associate professionals
 - 321 Life sciences technicians and related workers
 - 322 Modern health associate professionals (except nursing)
 - 323 Nursing and midwifery associate professionals
 - 324 Traditional medicine practitioners and faith healers
- 33 Teaching associate professionals
 - 331 Primary education teaching associate professionals
 - 332 Pre-primary education teaching associate professionals
 - 333 Special education teaching associate professionals
 - 334 Other teaching associate professionals
- 34 Other associate professionals
 - 341 Finance and sales associate professionals
 - 342 Business services agents and trade brokers
 - 343 Administrative associate professionals
 - 344 Government associate professionals
 - 345 Social work associate professionals
 - 346 Artistic, entertainment and sports associate professionals
 - 347 Non ordained religion associate professionals

SUB-MAJOR, MINOR AND UNIT GROUPS

- 31 Physical science and engineering associate professionals
 - 311 Physical science and engineering technicians
 - 3111 Chemical and physical science technicians
 - 3112 Civil engineering technicians
 - 3113 Electrical engineering technicians
 - 3114 Electronics and telecommunications engineering technicians
 - 3115 Mechanical engineering technicians
 - 3116 Chemical engineering technicians
 - 3117 Mining and metallurgical technicians
 - 3118 Technical draughters
 - 3119 Other physical science and engineering technicians
 - 312 Computer assistants and computer equipment controllers
 - 3121 Computer assistants (new)
 - 3122 Computer equipment controllers
 - 3123 Industrial robot controllers
 - 313 Optical and electronic equipment controllers
 - 3131 Photographers and image and sound recording equipment controllers
 - 3132 Broadcasting and telecommunications equipment controllers
 - 3133 Medical equipment controllers

- 3139 Other optical and electronic equipment controllers not elsewhere classified (new)
- 314 Ship and aircraft controllers and technicians
 - 3141 Ships' engineers
 - 3142 Ships' deck officers and seaman
 - 3143 Aircraft pilots and related workers
 - 3144 Air traffic controllers
 - 3145 Air traffic safety technicians (new)
 - 315 Building, safety, health and quality inspectors
 - 3151 Building and fire inspectors
 - 3152 Safety, health and quality inspectors (vehicles, processor products)
- 32. Life science and health associate professionals
 - 321 Life science technicians and related workers
 - 3211 Life science technicians
 - 3212 Agronomy and forestry technician
 - 3213 Farming and forestry advisers
 - 322 Modern health associate professionals (except nursing)
 - 3221 Medical assistants
 - 3222 Sanitarians
 - 3223 Dieticians and nutritionists
 - 3224 Optometrists and opticians
 - 3225 Dental assistants
 - 3226 Physiotherapists and related workers
 - 3227 Veterinary assistants
 - 3228 Pharmaceutical assistants
 - 3229 Other modern health associate professionals (except nursing)
 - 323 Nursing and midwifery associate professionals
 - 3231 Nursing associate professional
 - 3232 Midwifery associate professionals
 - 324 Traditional medicine practitioners and faith healers
 - 3241 Traditional medicine practitioners
 - 3242 Faith healers
- 33. Teaching associate professionals
 - 331 Primary education teaching associate professionals
 - 3310 Primary education teaching associate professionals
 - 332 Pre-primary education teaching associate professionals
 - 3320 Pre-primary education teaching associate professionals
 - 333 Special education teaching associate professionals
 - 3330 Special education teaching associate professionals
 - 334 Other teaching associate professionals
 - 3340 Other teaching associate professionals (new)
- 34. Other associate professionals
 - 341 Finance and sales associate professionals
 - 3411 Securities and finance dealers and brokers
 - 3412 Insurance representatives
 - 3413 Estate agents

- 3414 Travel consultants and organizers (new)
- 3415 Technical and commercial sales representatives
- 3416 Buyers
- 3417 Appraisers and valuers
- 3418 Auctioneers
- 3419 Other finance and sales associate professionals
- 342 Business services agents and trade brokers
- 3421 Trade brokers (new)
- 3422 Clearing and forwarding agents (new)
- 3423 Labour contractors and employment agents (new)
- 3429 Other business services agents and trade brokers
- 343 Administrative associate professionals
- 3431 Administrative and related associate professionals
- 3432 Legal and related business associate professionals
- 3433 Bookkeepers
- 3434 Statistical and mathematical associate professionals
- 3439 Other administrative associate professionals (new)
- 344 Government associate professionals
 - 3441 Customs and border inspectors
 - 3442 Government tax and excise officials
 - 3443 Government welfare and pension officials
 - 3444 Government licensing officials
 - 3445 Commissioned police officers and detectives
 - 3449 Other government associate professionals
- 345 Social work associate professionals
 - 3450 Social work associate professionals
- 346 Artistic entertainment and sports associate professionals
 - 3461 Decorators and commercial designers
 - 3462 Radio, television and other announcers
 - 3463 Street, nightclub and related musicians, singers and dancers
 - 3464 Clowns, magicians, acrobats and related workers
 - 3465 Athletes and related workers
- 347 Non-ordained religion associate professionals
 - 3470 Non-ordained religion associate professionals

MAJOR GROUP 4

CLERKS

SUB-MAJOR GROUPS

- 41. Office clerks
- 42. Customer services clerks

SUB-MAJOR AND MINOR GROUPS

- 41. Office clerks
 - 411 Secretaries and keyboard operating clerks
 - 412 Numerical clerks
 - 413 Material recording and transport clerks
 - 414 Library, mail and related clerks

- 42. Customer services clerks
 - 421 Cashiers, tellers and related clerks
 - 422 Client information clerk

SUB-MAJOR, MINOR AND UNIT GROUPS

- 41. Office clerks
 - 411 General Secretaries and keyboard operating clerks
 - 4111 Stenographers and typists
 - 4112 Word processing and related operators
 - 4113 Data entry operators
 - 4114 Calculating machine operators
 - 4115 Secretaries (new)
 - 412 Numerical Clerks
 - 4121 Accounting and book keeping clerks
 - 4122 Statistical and finance clerks
 - 413 Material recording and transport clerks
 - 4131 Stock clerks
 - 4132 Production clerks
 - 4133 Transport clerks
 - 414 Library, mail and related clerks
 - 4141 Library and filing clerks
 - 4142 Mail carriers and sorting clerks
 - 4143 Coding, proofreading and related clerks
 - 4144 Scribes
- 42. Customer services clerks
 - 421 Cashiers, tellers and related clerks
 - 4211 Cashiers and ticket issuers
 - 4212 Tellers and other counter clerks
 - 4213 Bet bookmakers and croupiers
 - 4214 Pawn brokers and money lenders
 - 4215 Bill, debt and related cash collectors
 - 422 Client information clerks
 - 4221 Travel agency clerks
 - 4222 Receptionists and information clerks
 - 4223 Telephone switchboard operators

MAJOR GROUP 5

SERVICE WORKERS AND SHOP AND MARKET SALES WORKERS

SUB-MAJOR GROUPS

- 51. Personal and protective services workers
- 52. Salespersons, demonstrators and models

SUB-MAJOR AND MINOR GROUPS

- 51. Personal and protective services workers
 - 511 Travel attendants and guides
 - 512 Housekeeping and restaurant services workers

- 513 Personal care workers
- 514 Other personal services workers
- 515 Astrologers, fortunetellers and related workers
- 516 Protective services workers
- 52. Salespersons, demonstrators and models
 - 521 Shop salespersons and demonstrators
 - 522 Stall and market salespersons
 - 523 Fashion and other models

SUB-MAJOR, MINOR AND UNIT GROUPS

- 51. Personal and protective service workers
 - 511 Travel attendants and guides
 - 5111 Flight attendants and travel stewards
 - 5112 Transport conductors
 - 5113 Travel guides and ground hosts
 - 512 Housekeeping and restaurant services workers
 - 5121 House stewards and housekeepers
 - 5122 Cooks
 - 5123 Waiters and bartenders
 - 513 Personal care workers
 - 5131 Child care workers
 - 5132 Institution based personal care workers
 - 5133 Home based personal care workers
 - 5139 Other personal care workers
 - 514 Other personal services workers
 - 5141 Hairdressers, barbers, beauticians and related workers
 - 5142 Companions and valets
 - 5143 Undertakers and embalmers
 - 5149 Other personal services workers not elsewhere classified
 - 515 Astrologers, fortune-tellers and related workers
 - 5151 Astrologers and related workers
 - 5152 Fortune-tellers, palmists and related workers
 - 516 Protective services workers
 - 5161 Fire-fighters
 - 5162 Policemen/women
 - 5163 Prison guards
 - 5169 Protective services workers not elsewhere classified (new)
- 52. Salespersons, demonstrators and models
 - 521 Shop salespersons and demonstrators
 - 5210 Shop salespersons and demonstrators
 - 522 Stall and market salespersons
 - 5220 Stall and market salespersons (new)
 - 523 Fashion and other models
 - 5230 Fashion and other models

MAJOR GROUP 6

SKILLED AGRICULTURAL AND FISHERY WORKERS

SUB-MAJOR GROUPS

- 61. Market-oriented skilled agricultural and fishery workers
- 62. Subsistence agricultural, fishery and related workers

SUB-MAJOR AND MINOR GROUPS

- 61. Market-oriented skilled agricultural and fishery workers
 - 611 Market gardeners and crop growers
 - 612 Market-oriented animal producers
 - 613 Market-oriented crop and animal producers
 - 614 Forestry and related workers
 - 615 Fishery workers, hunters and trappers
- 62. Subsistence agricultural and fishery workers
- 621 Subsistence agricultural, fishery and related workers

SUB-MAJOR, MINOR AND UNIT GROUPS

- 61. Market-oriented skilled agricultural and fishery workers
 - 611 Market gardeners and crop growers
 - 6111 Field crop and vegetable growers
 - 6112 Tree and shrub crop growers
 - 6113 Gardeners, horticultural and nursery growers
 - 6114 Mixed crop growers
 - 612 Market-oriented animal producers
 - 6121 Dairy and livestock producers
 - 6122 Poultry producers
 - 6123 Apiarists and Seri culturists
 - 6124 Mixed animal producers
 - 613 Market-oriented crop and animal producers
 - 6130 Market-oriented crop and animal producers
 - 614 Forestry and related workers
 - 6141 Forestry workers and loggers
 - 6142 Charcoal burners and related workers
 - 615 Fishery workers, hunters and trappers
 - 6151 Aquatic life cultivation workers
 - 6152 Inland and coastal waters fishery workers
 - 6153 Deep-sea fishery workers
 - 6154 Hunters and trappers
- 62. Subsistence agricultural and fishery workers
 - 621 Subsistence agricultural and fishery workers
 - 6210 Subsistence agricultural and fishery workers

MAJOR GROUP 7

CRAFT AND RELATED WORKERS

SUB-MAJOR GROUPS

- 71. Extraction and building trades workers
- 72. Metal and machinery trade workers
- 73. Precision, handicraft, printing and related trades workers
- 74. Other craft and related workers

SUB-MAJOR AND MINOR GROUPS

- 71. Extraction and building trades workers
 - 711 Miners and blasters, stone cutters and carvers
 - 712 building frame and related trades workers
 - 713 Building finishers and related trades workers
 - 714 Painters, building structure cleaners and related workers
- 72. Metal and machinery trade workers
 - 721 Metal molders, welders, sheet-metal workers, structural metal prepares, and related workers
 - 722 Blacksmiths, toolmakers and related workers
 - 723 Machinery mechanics and fitters
 - 724 Electrical and electronic instrument mechanics and fitters
- 73. Precision, handicraft, printing and related trades workers
 - 731 Precision workers in metal and related materials
 - 732 Potters, glass formers and related workers
 - 733 Handicraft workers in wood, textile, leather and related materials
 - 734 Printing and related trades workers
- 74. Other craft and related workers
 - 741 Food and related products processing trades workers
 - 742 Cabinet makers, wood treaters and related trades workers
 - 743 Textile and garment trade workers
 - 744 Pelt, leather and shoemaking trade workers

SUB-MAJOR, MINOR AND UNIT GROUPS

- 71. Extraction and building trades workers
 - 711 Miners and blasters, stone cutters and carvers
 - 7111 Miners and quarry workers
 - 7112 Shot firers and blasters
 - 7113 Stone splitters, cutters and carvers
 - 712 Building frame and related trades workers
 - 7121 Builders, traditional materials (new)
 - 7122 Bricklayers, stonemasons and tile setters
 - 7123 Concrete placers, concrete finishers and terrazzo workers
 - 7124 Carpenters and joiners
 - 7129 Other building frame and related trades workers
 - 713 Builders finishers and related trades workers
 - 7131 Roofers
 - 7132 Plasterers
 - 7133 Insulators
 - 7134 Glaziers
 - 7135 Plumbers and pipe fitters

- 7136 Building and related electricians
- 714 Painters, building structure cleaners and related workers
 - 7141 Painters and paperhangers
 - 7142 Laquerers and spray painters
 - 7143 Parquetry workers and floor layers
 - 7144 Building structure cleaners
- 72. Metal and machinery trade workers
 - 721 Metal moulders, welders, sheet-metal workers, structural metal preparers, and related workers
 - 7211 Metal moulders and core makers
 - 7212 Welders and flame-cutters
 - 7213 Sheet-metal workers
 - 7214 Structural metal preparers and erectors
 - 7215 Riggers and cable splicer
 - 7216 Underwater workers
 - 722 Blacksmiths, toolmakers and related workers
 - 7221 Blacksmiths, hammer smiths and forgoing-press workers
 - 7222 Toolmakers, metal pattern makers and metal markers
 - 7223 Machine-tool setter-operators
 - 7224 Metal grinders, polishers and tool sharpeners
 - 723 Machinery mechanics and fitters
 - 7231 Motor vehicle mechanics and fitters
 - 7232 Aircraft engine mechanics and fitters
 - 7239 Other machinery mechanics and fitters
 - 724 Electrical and electronic instrument mechanics and fitters
 - 7241 Electrical mechanics and fitters
 - 7242 Electronics fitters and servicers
 - 7243 Radio and television servicers
 - 7244 Telegraph and telephone installers
 - 7245 Electrical line installers, repairers and cable jointers
- 73. Precision, handicraft, printing and related workers
 - 731 Precision workers in metal and related materials
 - 7311 Precision instrument makers and repairers
 - 7312 Acoustical musical instrument makers and tuners
 - 7313 Jewellery and precious metal trade workers
 - 732 Potters, glass formers and related workers
 - 7321 Potters and related clay and abrasive formers
 - 7322 Glass formers, cutters, grinders and finishers
 - 7323 Glass engravers and etchers
 - 7324 Glass and ceramics painters and decorators
 - 733 Handicraft workers in wood, textile, leather and related matters
 - 7331 Handicraft workers in wood and related materials
 - 7332 Handicraft workers in textile, leather and related materials
 - 734 Printing and related trades workers
 - 7341 Compositors and type setters
 - 7342 Stereotypers and electrotypers
 - 7343 Printing engravers and etchers

7344 Bookbinders and related workers
7345 Silk screen, block and textile printers

74. Other craft and related trades workers

741 Food and related products processing trades workers

7411 Meat and fish butchers and preparers
7412 Bakers, pastry cooks and confectionery makers
7413 Food and beverage testers and graders
7414 Tobacco prepares and tobacco products makers

742 Cabinet makers, wood treaters and related trades workers

7421 Wood treaters
7422 Cabinetmakers and related workers
7423 Wood working machine setter-operators
7424 Basketry weavers, brush makers and related workers

743 Textile and garments trade workers

7431 Fiber preparers
7432 Hand weavers, knitters and other hand textile products makers
7433 Tailors, dressmakers and hatters
7434 Fur tailors and related workers
7435 Textile pattern makers and cutters
7436 Sewers, embroiderers and related workers
7437 Upholsterers and related workers

744 Pelt, leather and shoemaking trade workers

7441 Pelt dressers, tanners and fellmongers
7442 Shoemakers and related goods makers

MAJOR GROUP 8

PLANT AND MACHINE OPERATORS AND ASSEMBLERS

SUB-MAJOR GROUPS

81 Industrial plant operators
82 Stationary machine operators and assemblers
83 Drivers and mobile machine operators

SUB-MAJOR AND MINOR GROUPS

81 Industrial plant operators

811 Mining and mineral-processing plant operators

8111 Mining plant operators
8112 Mineral ore stone treating plant operators
8113 Well drillers and borers and related workers

812 Metal-processing plant operators

8121 Ore smelting, metal converting and refining furnace operators
8122 Metal melters, casters and rolling-mill operators
8123 Metal heat-treating plant operators
8124 Metal drawers and extruders

813 Glass and ceramics kiln and related plant operators

- 8131 Glass and ceramics kiln operators
- 8132 Other glass and ceramics plant operators
- 814 Wood-processing and papermaking plant operators
 - 8141 Sawmill, wood panel and related wood-processing plant operators
 - 8142 Paper pulp preparation plant operators
 - 8143 Papermaking plant operators
- 815 Chemical processing plant operators
 - 8151 Crushing, grinding and mixing equipment operators
 - 8152 Cooking, roasting and related heat-treating plant operators
 - 8153 Filtering and separating equipment operators
 - 8154 Still and reactor operators
 - 8155 Petroleum-refining plant operators
 - 8159 Other chemical-processing plant operators
 - 816 Power-generating and related plant operators
 - 8161 Power-generating plant operators
 - 8162 Steam turbine, boiler and engine operators
 - 8169 Other power-generating and related plant operators
- 817 Automated assembly-line and industrial robot operators
 - 8171 Automated assembly-line operators
 - 8172 Industrial robot operators
- 82. Stationary machine operators and assemblers
 - 821 Metal and mineral products processing machine operators
 - 8211 Machine-tool operators
 - 8212 Cement and other mineral processing machine operators
 - 822 Chemical products machine operators
 - 8221 Pharmaceutical and toiletry products machine operators
 - 8222 Ammunition and explosive products machine operators
 - 8223 Metal finishers, platers and coaters
 - 8224 Photographic products machine operators
 - 8229 Other chemical products machine operators
 - 823 Rubber and plastic products machine operators
 - 8231 Tyre making and vulcanizing machine operators
 - 8239 Other rubber and plastic products machine operators
 - 824 Wood products machine operators
 - 8240 Wood products machine operators
 - 825 Printing, binding and paper products machine operators
 - 8251 Printing machine operators
 - 8252 Binding machine operators
 - 8253 Paper and paperboard products machine operators
 - 826 Textile products machine operators
 - 8261 Spinning and winding machine operators
 - 8262 Weaving and knitting machine operators
 - 8263 Sewing and embroidering machine operators
 - 8264 Textile bleaching dying and cleaning machine operators
 - 8269 Other textile products machine operators

- 827 Food and related products processing machine operators
 - 8271 Meat and fish processing machine operators
 - 8272 Dairy products machine operators
 - 8273 Grain and spice milling machine operators
 - 8274 Baked goods producing and cereals processing machine operators
 - 8275 Fruit, vegetable and nut processing machine operators
 - 8276 Sugar processing and refining machine operators
 - 8277 Tea, coffee, cocoa, and chocolate preparing and producing machine operators
 - 8278 Tobacco products processing machine operators
 - 8279 Brewers and wine and other beverage machine operators

- 828 Assemblers
 - 8281 Mechanical machinery assemblers
 - 8282 Electrical machinery assemblers
 - 8283 Electronic equipment assemblers
 - 8284 Metal, rubber and plastic products assemblers
 - 8285 Wood and related materials products assemblers
 - 8286 Paperboard, textile and related products assemblers

- 829 Other stationary machine operators and assemblers
 - 8290 Other stationary machine operators and assemblers

83. Drivers and mobile machinery operators

831 Railway engine drivers and related workers

- 8311 Railway engine drivers
- 8312 Railway brakemen, signallers and shunters

832 Motor vehicle drivers

- 8321 Motorcycle drivers
- 8322 Car, taxi and light van drivers
- 8323 Bus and tram drivers
- 8324 Heavy truck drivers

833 Agricultural, earthmoving, lifting and other mobile Materials-handling equipment operators

- 8331 Motorized farm and forestry machinery operators
- 8332 Earth-moving and related machinery operators
- 8333 Crane, hoist and related materials-moving equipment operators
- 8334 Lifting-truck operators

834 Ships' deck crews and related workers

- 8340 Ships' deck crews and related workers

MJOR GROUP 9

ELEMENTARY OCCUPATIONS

SUB-MAJOR GROUPS

- 91. Sales and services elementary occupations
- 92. Agricultural, fishery and related labourers
- 93. Labourers in mining, construction, manufacturing and transport

SUB-MAJOR AND MINOR GROUPS

- 91. Sales and services elementary occupations
 - 911 Street vendors and related workers
 - 912 Shoe cleaning and other street services elementary occupations
 - 913 Domestic helpers and cleaners and related workers
 - 914 Building caretakers and window cleaners
 - 915 Messengers, watchers and security workers
 - 916 Garbage collectors and related labourers
- 92. Agricultural, fishery and related labourers
 - 921. Agricultural, fishery and related labourers
- 93. Labourers in mining, construction, manufacturing and transport
 - 931 Mining and construction labourers
 - 932 Manufacturing labourers
 - 933 Transport labourers

SUB-MAJOR, MINOR AND UNIT GROUPS

- 91 Sales and services elementary occupations
 - 911 Street vendors and related workers
 - 9111 Street food vendors
 - 9112 Street vendors, other products
 - 9113 Door-to-door and telephone salespersons
 - 9114 Shop workers
 - 912 Shoe cleaning and other street services elementary occupations
 - 9120 Shoe cleaning and other street services elementary occupations
 - 913 Domestic helpers and cleaners and related workers
 - 9131 Domestic helpers and cleaners
 - 9132 Helpers and cleaners in offices and hotels and related workers
 - 9133 Hand launderers and pressers
 - 914 Building caretakers and window cleaners
 - 9141 Building caretakers
 - 9142 Window cleaners
 - 915 Messengers, watchers and security workers
 - 9151 Messengers, package and luggage porters and deliverers
 - 9152 Watchers and doorkeepers
 - 9153 Private security guards
 - 9154 Vending machine money collectors and meter readers
 - 916 Garbage collectors and related labourers
 - 9161 Garbage collectors
 - 9162 Sweepers and related labourers
- 23
- 92 Agricultural, fishery and related labourers

- 921 Agricultural and fishery labourers
- 9211 Farmhands and labourers
 - 9212 Forestry labourers
 - 9213 Fishery, hunting and trapping labourers
- 93. Labourers in mining, construction, manufacturing and transport
 - 931 Mining and construction labourers
 - 9311 Mining and related labourers
 - 9312 Construction and maintenance labourers: roads, dams and similar constructions
 - 9313 Building construction labourers
 - 932 Manufacturing labourers
 - 9321 Assembling labourers
 - 9322 Hand packers and other manufacturing labourers
 - 933 Transport labourers
 - 9331 Freight handlers
 - 9332 Hand and pedal vehicle drivers
 - 9333 Drivers and operators of animal drawn vehicles and machinery
 - 9341 Labourers (N.E.C.)
- 01 Related to forces
 - 011 Security forces
 - 0110 Armed forces
- Additional codes
 - 0000 Not stated
 - 0009 Stated as any type of occupation